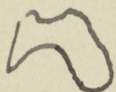


Data for Paper on
Age differences 1945
Quib vol. 62: 596-603
also 1926 Maester's Thesis
pub 1927 Sept. 30
Univ Calif. Bull. Dept
Geol. Sci. 17:1-62



Cuneiform
bet. alveolus &
metacarp.



Staphylinid
near radius



Handed fur on
radius





Dec 1928?

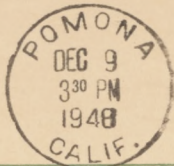
2

Op 1
With the addition of the beak, ~~is~~ the skeleton of Parapavo on exhibit in ~~xxxxxxx~~ La Brea Hall of the Los Angeles Museum, is practically complete, ^{main} ~~all the~~ elements ~~of~~ being present and the lesser ones, ~~represented~~ ~~xxxxx~~ quadrate, ribs, cuneiform, scapho-lunar, patella, metatarsal I and phalanges represented on at least one, if not both sides.

Heart Ranch (San Simón) 2-8-48
in the interior, & in San
Bernardino Mts. These 2 introductions
done well. 1st ones did not,
Dear Lew:

After checking our
records I found that I was
5 years off. The first
liberation of turkeys was in
1933. One plant of 10 was
in Orange County, Santiago
Canyon. Another plant was
near King City, 42 turkeys in
this plant. If you need more
information just drop me a line
and I will do my best to find
it for you. Merry Christmas —
Dick Kramel
State Game Warden
Chino —

R. Kramer
State Game Farm
Chino, Calif.



THIS SIDE OF CARD IS FOR ADDRESS

ECONOMY POST CARD

It costs the taxpayers 15¢ to 25¢ or more to send an official letter. This includes postage, stationery, stenographic, filing, and other services. It costs the taxpayers 5¢ or less to send this post card, which represents a saving of from 10¢ to 20¢.

Kenneth Stager
L. A. County Museum
Los Angeles 7
Calif.

Chamber of Commerce PR 3431

Mr. Fred Schaeffer

13267 Remmon St.

San Fernando, Calif.

Berry Turkey Ranch

1016 Baldwin Ave.

Arcadia, Calif.

Large ~~stout~~ no beard, no spur

dermal ossi. implanted on mesoderm
bone

SCIENTIFIC NAME *Parapavo californicus* CASE NO. 46 Pom
COMMON NAME Turkey DRAWER NO. 40

DEPT. NO.	TIME	LOCALITY	SPECIMEN	DATE	COLLECTOR
1023 982 981	10:57? " "	Workman Alhambra Sta. H.	Tibia (dist) Phalanx	1933 --	H. A. Wyde
2009	"?	La Habra - Imperial Hwy	Radius	5/20/36	Wyde

Studies on Age
Differences in Turkeys
Oct. 1945

Published Ark 62; 596-603

♀ ad turkey for Bred

		nut	nut	no nut
E5374	114.5	18.4	18.3	15.9
E6933	115.4	19.5	19.1	16.5
E5765	118.2	19.7	18.7	15.8
E6291	102.4	18.3	(17.5)	17.0
E7698	118.5	19.6	(19.0)	16.0
G6017	118.8	18.7	18.6	15.6
E5427	120.6	(20.0)	18.8	15.5
E5382	110.5	18.5	17.9	16.0
E7675	108.0	(19.8)	18.0	16.6
E7608	114.8	17.8	18.7	16.3
E7681	120.0	18.7	18.5	15.4

spec.

incl.
nearly ad ♂ 14
male ad 255

female ad 185
nearly ad ♀ 8

yg ♂ 21
with tars. 14
group 56

yg ♀ 13
with tars. 8
group 56

yg with tars. 18
other yg (run)
also ♂ 35

" ♀ 9

complete
groups 155
1-5a

74

2.23 Egg indiv. = 275 = 354 (spec)

253 (spec)

199
yg minus oarsup = about 205
+ 5 or 6 female ad

for indiv. 735

Total bird spec. 2
unimp.

735

71
30
38
29
168

comp.	a	spec	broken	ind.	spec.
Group 1	14 ¹⁵ indiv.	(17)	13 (15 spec.)	= 28	32
Group 2	14 ¹⁵ indiv.	(16)	16 (17)	= 31	33
Group 3	14 indiv.	(19)	20 (24)	= 34	43
Group 4	14 ¹⁵ indiv.	(21)	18 (19)	= 31	34
Group 5a	24 ²⁹ indiv.	(36 spec.)	22 (21)	= 31	36
Group 5b	13 ♀ indiv. + 13 with tub		25 spec. broken with tub + 22 (34) but shell rough	= (94)	101
Group 6	14 L ♂ + 11 R ♂ + 7 ♀		25 spec. broken with tub + 22 (34) but shell rough	= 44	75
One, presumably no data		44	(25 spec.)		60

Group 1	—	32
2	—	33
3	—	43
4	—	34
5a	—	36
5b	—	42

218
114
332

220
= 330 approx # spec. subadult

Nearly 700 indiv. tubers
of which 225
are subad.
200 are
quite veg.
(mollusks)
not worked

In past years in the birds of Puerto La
Brea, the presence of young turkeys has
frequently been commented upon. In the avian
collection at the Los Angeles Co. Mus. alone, at least
pre-adult individuals are represented.

* could be agreed to spiders full grown or
 others broken so can't tell right.
 ✓ = definite adult = 82

♀ + turkey ad complete

156

90
 65

144 to 105													
107 108 109													
102.6	109.6	110.9	111.7	112.5	113.7	114.2	115.4	116.4	117.3	118.9	119.0	120.6	121.2
108.0	110.1	111.3	112.6	113	114.0	115.8	116.2	117.8	118.2	119.7	120.0	121.3	
109.2	110.4	111.4	112.0	113	114.2	115.4	116.1	117.4	118.8	119.0	120.5	122.3	
109.4	110.8	111.0	112.4	113.2	114.6	115.0	116.0	117.4	118.9	119.0	120.4	121.9	
108.7	110.5	111.5	112.5	113.8	114.5	115.6	116.1	117.2	118.2	119.2	120.3		
107.4	110.4	111.7	112.5	113.4	114.7	115.1	116.0	117.9	118.6	119.3	120.4		
108.0	110.4	111.8	112.7	113.5	114.8	115.3	116.2	117.7	118.2	119.4	120.5		
107.2	110.5	111.5	112.3	113.0	114.3	115.0	116.6	117.3	118.2	119.6	120.2		
109.0	111.7	112.3	113.2	114.2	115.8	116.7	117.0	118.8	119.3	120.7			
107.7	112.5	113.7	114.2	115.0	116.6	117.5	118.3	119.4	120.0				
	113.4	114.8	115.9	116.5	117.9	118.3	119.8	120.5					
	113.4	114.1	115.4	116.5	118.6	119.8	120.2						
	113.7	114.9	115.1	116.8	118.3	120.3							
	114.6	115.0	116.0	118.7	120.4								
	115.7	118.1	120.0										
	115.3	118.1	120.5										
	115.0	118.4	120.1										
	115.0	118.1											
	115.12												
	115.2												

144 to 110
 114.2
 114.3

34 to 115
 2

121

122

Jaap, R. Geo., Robt. Pezzinto, and R.B. Thompson
Body form in growing chickens. II growing
Cornish Bantams. Poultry Sci, vol 22, no. 1
Jan. 1943.

p. 14 - chart of age & shank length compared
with white Wyandottes

p. 14 - "Shank length of both Bantams & Wyandottes
had ceased increasing prior to end of exper. periods
reaching its max length by 16 wks in Wyandottes (9, 21 wks, 23)
A slightly earlier cessation of length. Shank growth was
observed in Cornish Bantams, the (55) albino, mature
Shank length by 15 wks & the (42) by 15 wks after
hatching. Whether this dif. in age at which mature
shank length is reached may be attributable to the smaller
size of the Bantams must be tested by further observations

Harshaw, Harold, Harry W. Titus, and James Lutz
1934. Title?

Low. Agric. Res. 48:997-1008

p. 1000 Show that ♂ & ♀ (chickens) separate in size at
4th wk. - Rhode Is. Reds.
6th wk - White Leghorns

p. 1000 cont'd
Tarsus calcification
White Leghorn ♀ 12 wks, ♂ 14 wks
Rhode Is. Red ♀ 13 wks, ♂ 14 wks

Letter from Dept. Agric. Alfred R. Lee

"At age of about 34 weeks, prior to which spurs are inconspicuous nubbins, they start to grow noticeably so that at the age of about 18 months most of the growth is completed. However they appear to continue to grow though slowly throughout the males life time. Observations on wild turkeys raised in captivity indicate that the situation is about the same in wild & domestic turkeys."

Jaap, R. George.

1939. Heritable Body shape of the domestic turkey.
Proc. Seventh World's Poul. Cong. & Expo.
pp. 68-70.

p. 68 "General body growth of turkeys & chickens - - - -
continues to the end of the tenth month or longer
after hatching. Most of the (9's) have attained
their max. shank length by 20 weeks of age
whereas that of the males continues for approx.
20-22 ♀ 24-26 ♂
& who, longer

p. 69 - "mean shank length for all birds recorded was
7.57 inches for (20's) and 5.95 in. for (9's).
In a study of the pricing of 35 dams, the
shank lengths of males were 27.3 percent
greater than those of their full sibs."

Jaap, R. G., T. T. Mulby & R. B. Thompson
1939. ~~Tables of Body shape for first turkeys~~
Heritable Values for use in selection prospects
breeders. Mimeographed circular #49 Oct 1939.
Agri Exper. Stat. Okla A & M Coll. Stillwater Okla

p. 11 Town in these tables weighed bet. 26-28 wks age
9's 22-24 weeks (4 wks earlier) [evident] ♂
set full size - the other pub. refers to 20-22 wks age
24 wks 2 dams 76.4-8.0 in. wt 9-26 lbs
♀ 7.9-7.0 in. " 5.1-16.1 "
28 wks 2 dams 76.3-8.0 in. " 11-32
♀ 7.9-7.0 " " 7-20
32 wks " 5' 6.5-8.9 " " 14-36
♀ 5.1-7.0 " " 9-23
60 7 386
65 35
68 30
2193
66

4

Table showing bone proportions in different age groups
of turkeys (Parapavo californicus)

(All figures are averages)

	GROUP I	GROUP II	GROUP III	GROUP IV	GROUP V	GROUP VI	ADULT
Breadth of shaft (mm.)							
Male			6.9 ⁷	7.6 ^{7.5}	7.8 ^{7.5}	7.9 ⁸	8.6 ^{8.5}
Female	4.7		5.7 ^{5.5}	6.5 ⁷	6.6 ^{6.5}	6.7 ^{6.5}	7.0 ^{7.5}
Both sexes	4.7	6.0	6.7 ⁶	7.1 ⁷	7.2 ⁷	7.3 ⁷	7.8 ^{7.5}
Breadth distal end (mm.)							
Male			20.0	21.7 ^{21.5}	22.0	22.3 ²²	22.5 ²²
Female		17.0	16.8 ^{16.0}	18.3 ^{17.5}	18.6 ^{18.0}	18.7 ¹⁸	18.8 ¹⁸
Both sexes	13.0	17.1	18.4 ^{18.0}	20.0 ^{20.0}	20.3 ²⁰	20.5 ²⁰	20.6 ²⁰
Ratio br. shaft to length (%)							
Male			6.1	5.8	5.8	5.8	6.3
Female		6.5	6.2 ^{6.0}	6.1 ^{6.5}	6.1 ^{6.5}	6.1 ^{6.5}	6.3 ^{6.0}
Both sexes	7.5	6.9	6.1 ^{6.0}	6.0 ^{6.5}	6.0 ^{6.5}	6.0 ^{6.5}	6.3 ^{6.0}
Ratio brl distal end to length (%)							
Male			18.0	16.5	16.5	16.5	16.5
Female	20.5	19.5	18.4 ¹⁸	17.3 ^{16.5}	17.1 ^{16.5}	17.0 ^{16.5}	17.0 ^{16.5}
Both sexes	20.7	19.8	18.2 ¹⁸	16.9 ^{16.5}	16.8 ^{16.5}	16.8 ^{16.5}	16.8 ^{16.5}

Length
♂
♀

next?

60

85

115
90
102

129
103
116

130
105
117

134
108
121

134
108
121

juvenile # are included
from papers

above — ✓ = spur just quite completed
 Below — = practically ad but no spur
 " — v = young but tarsus on

male (with ^{mostly} spur) 180
 8/170 adult

← down	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	→ up
124.3	130.4	131.3	132.2	133.7	134.0	135.7	136.0	137.8	138.4	139.6	140.3	141.6	142.3	143.2	144.3	145.2	146.7	147.8	149.5	
127.3	130.5	131.9	132.6	133.7	134.8	135.8	136.7	137.9	138.7	139.2	140.3	141.4	142.9	143.3	144.1	145.7	146.3	147.3	148.8	
128.5	130.5	131.6	132.8	133.0	134.7	135.8	136.4	137.0	138.9	139.7	140.5	141.0	142.9	143.2	144.0	145.1	146.1	147.2	148.2	
129.5	130.8		132.5		134.6	135.0	136.2	137.8	138.2	139.2	140.5	141.8	142.2	143.0	144.2	145.1	146.7	147.7	150.7	
129.0	130.4		132.8		134.2	135.7	136.1	137.8	138.7	139.2	140.4	141.3	142.7	143.7	144.5	145.5	146.5		148.5	
128.4			132.5		134.1	135.4		137.5	138.0	139.7	140.5	141.6	142.0	143.1	144.6	145.0	146.1		147.0	
					134.6	135.5		137.3	138.0	139.6	140.0	141.0	142.7	143.9	144.0	145.4	146.6		150.3	
					134.5	135.8			138.7	139.1	140.0	141.0	142.9	143.6	144.4	145.7	146.4			
					134.8				138.4	139.3	140.3	141.4	142.8	143.8	144.3		146.4			
					134.9				138.6	139.6	140.7	141.3	142.8	143.8			146.0			
										139.7	140.5	141.3	142.8	143.8						
										139.0	140.7	141.8	142.8	143.3						
										139.4	140.2	141.0		143.8						
										139.1	140.2	141.5		143.0						
										139.3	140.8	141.2								
										139.3		141.0								
										139.5		141.3								
										139.1		141.1								
												141.1								

amethyst	♀	114.45	♂	140.0
" dit	♀	18.8	♂	22.4
" sh	♀	7.0	♂	8.4

16.09		6.11		16.09		6.11		16.09		6.11		16.09		6.11		16.09		6.11	
ba		ca		ba		ca		ba		ca		ba		ca		ba		ca	
E8412	142.7	22.6	8.7	15.8	6.1	E6939	111.7	19.1	7.3	17.1	6.5	K3080	132.0	22.8	8.7	17.2	6.6		
E6783	145.4	22.4	8.7	15.4	5.9	E5977	110.4	19.3	7.3	17.4	6.6	E8519	141.5	22.6	8.8	15.9	6.2		
E5412	124.3	21.3	7.9	17.1	6.7	E6965	114.8	18.6	7.1	16.2	6.2	E5335	142.8	23.5	8.8	16.5	6.1		
E5356	131.1	21.3	7.9	16.2	6.0	E8218	116.6	19.2	6.9	16.4	5.7	E7181	139.3	21.4	8.4	15.2	6.0		
E527	138.2	21.5	8.4	15.5	6.0	E6933	115.3	19.4	7.6	16.4	6.5	E7492	142.7	23.7	9.1	16.6	6.3		
E8246	146.7	24.5	9.1	16.8	6.2	E8123	110.7	17.5	6.7	15.9	6.1	E7294	136.7	22.2	8.6	16.2	6.3		
E6602	134.8	21.3	8.3	15.8	6.1	E6241	102.5	18.2	6.9	17.7	6.7	E5784	137.9	22.4	8.1	16.2	6.1		
E6039	146.8	24.3	8.9	16.5	6.0	E7681	120.0	18.6	7.2	15.1	6.0	E5775	148.9	24.7	9.1	16.4	6.1		
E6339	139.7	22.2	8.1	15.9	6.1	E6798	118.3	19.2	7.3	16.2	6.1	E7025	145.6	22.4	8.6	15.4	5.9		
E6725	142.8	22.7	9.2	15.9	6.4	66017	118.4	18.7	7.0	15.8	5.9	E5625	141.3	22.9	8.8	16.1	6.2		
E5793	139.2	23.3	8.4	16.7	6.0	E7898	120.0	19.1	7.2	16.2	6.0	E8126	110.3	17.8	6.6	16.1	5.9		
E5891	147.1	23.7	8.1	16.0	5.5	E6664	114.1	17.5	6.6	15.3	5.7	E7896	121.1	19.8	7.4	16.3	6.1		
E7865	135.1	23.1	8.2	16.9	6.0	E5950	116.4	17.2	6.7	14.7	5.7	E8366	116.6	19.6	7.3	16.8	6.2		
E7240	132.3	22.3	8.2	16.8	6.2	E8518	116.5	19.3	6.7	16.5	5.7	E5765	118.2	19.6	7.3	16.6	6.1		
E6028	146.4	23.4	7.9	15.9	5.4	E7844	120.5	17.1	7.3	16.4	6.0	E8022	118.1	19.3	6.7	16.3	5.6		
E7566	140.8	22.4	8.1	15.9	5.7	E7738	109.6	17.6	6.8	16.2	6.2	E8081	109.0	18.5	6.8	16.9	6.2		
E8240	126.5	20.5	7.1	16.2	5.9	E7148	120.6	18.8	7.2	15.4	6.0	E6770	111.7	18.2	6.7	16.3	6.0		
E6897	140.6	24.1	8.2	17.1	5.8	E5866	111.7	17.9	6.9	16.0	6.1	E6778	118.1	19.5	7.2	16.5	6.1		
E6848	135.7	21.4	8.2	15.7	6.0	E7978	111.2	19.3	6.7	17.3	6.0	E6942	117.0	18.0	6.8	15.4	5.8		
E5764	139.2	22.9	8.5	16.4	6.1	E8306	113.7	20.0	6.5	17.6	5.7	E5634	111.0	18.4	6.8	16.7	6.1		
136.35				16.36	5.82	115.43				16.14	5.91	24.1408				16.99	6.01		

Adult ♀

22) 1556
154
16

1556
434
1992 (7.1)
28) 1996
198
32

E7698 118.5 ^x	7.4	E6084 116.0 ^x	6.8	E6115 121.9	E8523 117.7 ^x	G5944 110.4 — ✓
G6017 118.8 ^x	7.0	E8125 107.8		G6280 111.5 ✓	E6748 110.8 ✓	E6200 114.4 — ✓
E5382 111.5 ✓	6.7	E5330 116.4 ✓	6.7	E6577 112.4 ✓	E5123 120.0	E8469 120.5
E5427 120.5	6.9	E6696 117.6 ^x	7.2	E6445 114.4 ✓	E8244 114.8 —	E8058 109.0
E6681 120.0	7.2	E5343 112.4 ✓	7.1	E6331 115.8 ^x	E8215 115.0 ^x	4543
E5765 118.2 ^x	7.4	E6899 119.5 ^x		E6846 120.3	E7696 121.2	7.4
E6291 112.4 ✓	7.0	E5466 115.7 ^x	6.7	E7671 108.0	E6272 115.1 ^x	7.0
E5374 114.6 ✓	7.5	E7414 110.8 ✓		E7122 120.1	E7534 118.5 ^x	7.2
E7508 118.9 ^x	7.2	E7217 116.2 ^x		E8511 115.5 ^x	E6331 116.6 ^x	23328
E8465 115.3 ^x	7.3	E5653 112.5 ✓		E5977 110.4 ✓	E8123 110.0 ✓	22933
E8546 119.8 ^x	7.3	E8034 107.7		E8018 117.3 ^x	E6950 116.0 ^x	22985
E6948 112.3 ✓	7.2	E5634 111.0 ✓	6.9	E6807 112.4 ✓	E7919 120.3	23125
E8121 110.3 ✓	6.7	E8366 116.6 ^x	7.3	E6903 114.9 ✓	E6965 114.8 ✓	4543
E7282 117.2 ^x	6.8	E7608 114.8 ✓		E8359 109.6	E6777 113.8 ✓	83) 96914 (116.7)
E8512 115.3 ^x		E8454 115.6 ^x		E8234 119.1 ^x	E7300 110.3 ✓	83
E7914 115.0 ^x		E7057 118.2 ^x		E6933 115.4 ^x	E8227 114.8 ✓	83) 83139
E5851 112.3 ✓		E8030 120.2		E6800 118.3 ^x	D8174 116.5 ^x	83) 83139
E6654 122.2		E6942 117.0 ^x		E5794 112.7 ✓	E8827 114.1 ✓	83) 83139
E6939 116.8 ^x	7.3	G5999 118.0 ^x		E6473 110.3 ✓	E5898 113.7 ✓	83) 83139
E8362 119.9 ^x		E5851 114.3 ✓		E5639 118.2 ^x	E5791 118.9 ^x	83) 83139
23328		22933		22985	23125	83) 83139

7 - 120
22 - 115
20 - 110
3 - 105

1 -	150
6 -	145
9 -	140
5 -	135
2 -	130

Subadmitt
Group?

Numbers for plotting graphs

Graph of length

Group I -- 42, 62, 78

Group II-- Female 80, Male 88

"	III**	"	92	"	115
"	IV --	"	105	"	130
"	V --	"	107	"	133
"	VI--	"	109	"	135
"	VII--	"	110	"	136
"	VIII	"	"	"	"
"	IX	"	"	"	"

Graph of Breadth of Distal End

Group I -- 9, 13, 16

"	II --	Female 16, Male	17.5
"	III --	"	17 " 20
"	IV --	"	18 " 22
"	V --	"	" " "
"	VI --	"	" " "
"	VII --	"	" " "
"	VIII--	"	" " "
"	IX --	"	" " "

Graph of Breadth of Shaft

Group I -- 3.2, 4.5, 5.5

"	II --	Female 5.3, Male	6.1
"	III --	"	5.9 " 7.0
"	IV --	"	6.5 " 7.6
"	V --	"	6.6 " 7.9
"	VI --	"	6.6 " 7.9
"	VII --	"	6.8 " 8.1
"	VIII --	"	6.9 " 8.3
"	IX --	"	7.0 " 8.6

Group 1
youngest
corn buds
poorly formed

Group 2

Group 3
Prox. end
still ill formed
dist. end pretty
well formed &
framing
the middle
of formula

Group 4
Prot. and
Spongy.
distal end
lucent comp.
perfused, int.
foramen comp.
ext. approach-
ing completion

Group 5
Prox. and
flat to unto
to tarsus
Distal end
completely
occluded
includes more
with tarsus
and volub. but a

5-6 mm
to length of
comparison
yg. birds each

Group 6
Tib. ant,
tubercle
present
ossified lig
not developed
in ♀, spine
not present
in ♂

Turkey

	#	Sex	90 aver br sh	90 aver br dist	Length	90 aver br dist	90 aver br sh	90 aver br length	90 aver br sh	90 aver br dist	90 aver br sh	90 aver br dist	sh	dist	90 sh	90 dist			
Group 1	20	no	7.9%	20.7	42-78	8.3-16.8 13.0	3.2-5.9 4.7	42.5-86.5											
Group 2	15	no	6.9	19.8	74-100	15.0-19.7 17.1	5.0-6.5 6.0-	74.1-105.7											
Group 3	29	yes 64-237	6.1	18.1	88-128	16.1-21.4 19.6	5.0-7.9 6.7	87.8-118.7	5.75	16.8	6.3	18.4	6.94	20.4	6.05	17.3			
Group 4	22	yes 99-138	5.9	16.7	101-134	17.6-22.5 20.5	6.3-8.0 7.3	101.4-134.8	6.53	18.28	6.17	17.3	7.66	21.65	5.85	16.6			
Group 5	27	yes 99-188	5.9	16.7	101-138	17.7-23.0 20.7	6.2-8.4 7.5	101-138.4	6.6	18.46	6.1	17.09	7.85	22.06	5.8	16.6			
Group 6	50	yes 249-265	3.9	16.7	110-147 105-145	17.7-23.5 20.4	6.0-8.7 7.3	110.8-147.7	6.7	18.7	6.11 5.84	17 16.3	7.99	22.38	5.7 5.8	15.9			upper tip = adjacent to tarsus univ
Definitely Adult	204	yes 824-1227	6.3	16.7	102-150 97-145	18.5-23.7 20.7	6.7-9.2 7.8		7.0	18.8	6.3 6.12	17.0 16.4	8.6	22.6	6.3 6.14	16.5 16.1			

ad? = males badly worn so you don't shoot

Turkey Count

307

200

107

189

694

253
183
63
63

#38

260

648

188

15

54

69

140

254

253

9

Comp ad ♂ R

|||||

5 ad?

|||||

54

7 ad comp R

|||||

87

" " " L

|||||

7 ad?

|||||

81

7 ad comp L

|||||

67

Prox ad ♂ R (spun)

|||||

39

" " " L

|||||

50

Dit ad ♂ R (spun)

|||||

39

" " " L

|||||

34

Spur only R

|||||

19

" " " L

|||||

11

Dit ad ♂ R (spun)

|||||

35

7 dit R

|||||

31

" " " L

|||||

33

7 dit L

|||||

31

Dist ♂ R

|||||

15

7 dit R

|||||

18

" " " L

|||||

20

7 dit L

|||||

27

Prox ♂ R (spun)

|||||

11

Prox R 7

|||||

34

" " " L

|||||

11

" " " L

|||||

49

Prox R 7

|||||

25

Prox R 7

|||||

25

" " " L

|||||

35

" " " L

|||||

38

Prox L 7

|||||

13

Prox subad R

|||||

5

" " " L

|||||

13

Prox subad L

|||||

1

Prox R 7

|||||

9

Prox R 7

|||||

1

" " " L

|||||

3

Subad R

|||||

1

Subad ♂

|||||

6

7 dit R

|||||

3

" " " L

|||||

3

7 dit L

|||||

1

Prox R 7

|||||

8

Prox R 7

|||||

1

" " " L

|||||

14

Prox R 7

|||||

8

54
39
39
19
31
20
81
50
34
11
33
11
35
25

67
31
49
38
185
13
200
84
31
4
174

54

14

Brown yg turkey

✓ = entered on other list now

sheet 2

Group 1 6	near west gate	Group 26 ?	Group 36 ?	Group 46	Group 54 goodeney for 5a	Group 58 goodeney for 5a
K 1081	50.3	66446 59.6	E6687 71.5	E8284 101.0	✓ E5792 114.6	E6600 143.2 ✓
66460	51.7	E6456 65.1	66440 76.2	E6614 101.7	✓ E6133 109.1	E6219 140.5 ✓
20 Hills 20 Hills 20 Hills 66444	54.6	E6557 68.2	E6831 76.5	E7122 127.3	✓ E5206 121.2	E6187 137.0 ✓
66472	73.2	66403 71.4	E8324 78.0	E6527 134.6	✓ E6121 137.2	E6580 140.0 ✓
E6761	76.5	E6915 79.5	66437 81.8	E8348 106.1	✓ E8396 153.3	
E8286	77.7	E834 79.7	66425 81.0			
F3296	78.7	E7427 80.9	E8536 92.8			
		E7363 82.5	E5277 97.9			
		E6231 86.1	E6280 99.2			
		E7978 90.0	E8209 102.4			
		E8053 93.6	66609 108.6			
			E5400 108.2			
			E6651 109.2			
			65496 116.3			
			66005 119.2			

37 boxes

Tuesday 67

no groups
on the paper

new meas. made

Group 5' a
proximal
flat surface
in the tarsus
tarsus off or
beak-mounted
rough-surf.

Group
probably
connected to
taxis
w/ very rough
but true, it's
not, about

Group 6
Two fortis.
ant. ment
cut paper
end still
some fresh

Tit and
loosely
attached
add to
snare 56

no	E 6242	100.8	E 639	132.9	E 666	111.7	E 6218	140.5	E 7036	109.8	E 6714	131.7	E 8199	119.2	E 8522	147.2
	E 6241	102.7	E 5058	134.9	E 6377	111.8	E 8416	140.8	E 6405	100.7	E 7156	131.2	E 8358	110.0	E 6471	146.4
	G 6039	104.6	E 6162	134.8	E 6736	111.4	E 5914	141.1	E 8358	100.1	E 452	140.9	E 5839	118.3	E 8156	139.4
	E 6133	109.1	E 727	137.2			E 6600	143.2								
	E 7916	110.8	E 8216	139.1	E 6516	112.1	E 7113	143.3	E 866	111.6	E 5556	141.0	E 7778	119.1	E 8429	150.2
	E 8158	112.8	E 7449	138.7	E 6191	113.1	E 8131	143.0	E 711	110.1	E 6685	144.5	E 8494	117.0	E 7452	141.2
	E 7453	112.8	E 5955	142.8	E 7309	113.7	E 5081	143.7	E 6358	113.2	E 5891	147.2	E 5788	113.5	E 5845	149.5
	E 5564	114.2	E 6844	145.7	E 7743	113.9	E 5899	145.4	E 5972	111.6	E 6028	146.4	E 7186	120.5	E 6774	131.5
notes	E 6034	114.5			E 6152	114.3	E 5907	144.3	E 5708	113.5	E 6174	146.3	G 5980	116.1		
	E 5792	114.6			E 884	114.3			E 8242	113.9	E 5479	150.3	E 6358	113.4		
	E 8338	114.8			E 5085	116.0	E 5263	146.0	E 5871	114.2			E 5992	111.7		
	E 6971	115.6			G 5938	115.9	E 6830	147.7	E 7179	114.0			E 5871	114.3		
	E 5940	117.8			E 7056	114.8			E 5874	118.2			E 7036	109.9		
	E 7101	119.0			E 7023	115.1			E 5980	116.0			E 7174	114.0		
	E 6206	121.2			E 7144	115.6			E 5994	117.0			E 8242	113.6		
	E 6213	125.7			C 9153	117.1			E 7184	116.6			E 5984	116.7		
no	E 5260	129.3			E 7807	118.3			E 7884	120.5			E 7934	111.9		
turn	G 5495	130.8			E 6964	118.5			E 7886	119.3			E 6406	110.7		
	E 6767	131.2			E 7125	119.7			E 7778	119.1			E 7712	111.7		
	E 6732	131.1			E 5948	132.5										
	E 6697	132.6			E 6105	135.5										
					E 6106	135.6										
	E 5671	133.0			E 5363	134.5										
	E 8396	133.3			E 6795	136.1										
	E 7214	134.9			E 6187	137.0										
	E 6121	137.2			E 7737	138.1										
	E 5088	138.5			E 5392	139.5										
	E 7955	139.6			E 7822	140.2										
					E 5073	140.5										

ALPHACORP
 CO. INC.

$\begin{array}{r} 113.80 \\ 115.11 \\ \hline 2) 228.91 \\ \hline 114.45 \\ \hline \end{array}$	$\begin{array}{r} 139.21 \\ 140.87 \\ \hline 2) 280.08 \\ \hline 140.0 \\ \hline \end{array}$	$\begin{array}{r} 18.78 \\ 18.89 \\ \hline 2) 37.67 \\ \hline 18.83 \\ \hline \end{array}$	$\begin{array}{r} 22.41 \\ 22.83 \\ \hline 2) 45.24 \\ \hline 22.6 \\ \hline \end{array}$	$\begin{array}{r} 7.11 \\ 6.97 \\ \hline 2) 14.08 \\ \hline 7.0 \\ \hline \end{array}$	$\begin{array}{r} 8.57 \\ 8.74 \\ \hline 2) 17.31 \\ \hline 8.65 \\ \hline \end{array}$
--	---	--	---	--	---

$$\begin{array}{r} 140.08 \\ 2) 280.16 \\ \hline 140.08 \\ \hline \end{array}$$

$\begin{array}{r} 114.45 \\ 140 \\ \hline 2) 254.45 \\ \hline 127.22 \\ \hline \end{array}$	$\begin{array}{r} 18.8 \\ 22.6 \\ \hline 2) 41.4 \\ \hline 20.7 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ 8.6 \\ \hline 2) 78.6 \\ \hline 39.3 \\ \hline \end{array}$	$\begin{array}{r} 22.4 \\ 18.7 \\ \hline 2) 41.1 \\ \hline 20.55 \\ \hline \end{array}$
---	--	---	---

$$\begin{array}{r}
 23 \overline{) 5149} \quad (22.3 \text{ mV}) \\
 \underline{96} \\
 54 \\
 \underline{86} \\
 89
 \end{array}$$

$$\begin{array}{r}
 20019.9 \\
 24 \overline{) 1918} \quad (7.99) \\
 \underline{168} \\
 238 \\
 \underline{216} \\
 220
 \end{array}$$

$$\begin{array}{r}
 114.7 \quad 18.7 \quad 6.7 \\
 \underline{140.3} \quad \underline{22.3} \quad \underline{80} \\
 2 \overline{) 255.0} \quad \underline{410} \quad \underline{147} \\
 \underline{127.5} \quad \underline{205} \quad \underline{7.3}
 \end{array}$$

1918

$$\begin{array}{r}
 3750 \\
 5149 \overline{) 1206} \\
 \underline{889} \\
 299 \\
 \underline{238} \\
 31
 \end{array}$$

✓ tub. for tib. ant. formed in these
but not in others = 10 others are 9
tarsus united but
prox. end still porous

Turkey Tarsi male
no spur but tarsus on

												occupied lip, but no spur			
												beginning of spur			

①

both ends very spongy & thick

prox end spongy (no shape)
 distal less so but still
 trochlear wide & spongy
 dist. trochlear beginning to
 join - 1st troch. not quite
 1st troch. joined ~~dist~~ top
 begins to.

Distal end ossified
 prox. end not tho less
 spongy & a slight
 shaping of center meta-
 podial noted.

	to dist	to prox	to prox	to dist																
G6431	42.5	3.2	8	8.3	² E7682	79.4	5.5	12.5	16.0	² E6593	87.7	5.0	14.3	16.4	⁷ E7804	104.9	6.7	15.8	12.4	↑
G6481	44	3.9	7.4	9.3	¹ E8316	81.6	6.0	13.7	16.6	³ E7509	114.2	7.1	20.4	21.5	⁷ E7678	102.3	6.2	14.3	15.1	↑
G6484	43.7	3.5	8.4	8.9	³ E6167	81.0	5.5	13.8	16.2	³ E7136	114.4	6.9	18.3	—	⁷ E7908	108.2	6.5	14.8	17.8	↑
E7228	54.4	4.2	—	11.7	² E7427	80.8	5.6	13.0	—	⁴ E6970	117.3	7.1	18.6	20.9	⁷ E725	129.3	8.0	18.8	21.8	↑
K1082	59.3	4.4	8.7	12.2	² E6424	81.1	5.3	11.5	16.1	³ E6604	110.2	7.2	16.1	20.5	⁷ E6891	138.5	8.6	—	22.5	↑
G6450	60.1	4.8	9.6	13.1	² E6473	83.2	6.2	13.6	16.5	⁴ E8122	118.2	7.2	17.6	—	⁷ E7284	130.5	8.1	19.7	22.5	↑
G6446	59.6	4.3	10.3	—	² E7363	82.4	6.0	12.8	16.2	⁴ E7224	116.2	6.6	19.2	21.5	⁷ E7621	133.3	7.7	20.0	21.2	↑
E6456	65.1	4.5	10.1	13.5	² E5650	84.5	6.6	14.8	18.0	⁴ E6499	118.8	6.9	18.7	20.7	⁷ E7393	133.3	7.6	20.2	20.1	↑
E7548	68.6	5.1	12.3	14.1	² E8315	87.1	6.1	14.8	—	⁴ E6443	116.6	7.2	19.0	20.3	⁷ E7955	137.9	7.8	19.0	22.1	↑
E8254	71.5	5.3	—	15.1	² E8313	87.8	6.1	14.5	16.7	⁴ E7974	123.5	7.7	17.8	20.2	⁷ E8487	131.3	7.9	20.7	22.0	↑
G6403	71.3	5.1	10.8	14.2	² E6256	87.7	6.1	14.4	17.8	⁴ E6927	128.7	7.9	20.5	—	⁷ E7042	132.3	7.8	19.7	22.1	↑
E7288	71.7	5.2	10.6	13.8	² E6282	98.4	6.5	16.4	19.2	⁴ E7751	123.0	6.9	20.8	—	⁷ E6752	139.0	8.3	21.2	22.5	↑
G6492	73.2	5.1	—	14.6	² E7990	88.5	6.0	13.4	16.5	⁴ E6362	119.0	7.2	16.0	20.8	⁷ E6039	131.2	7.6	—	21.9	↑
E8641	74.1	5.2	10.0	15.0	² E7648	91.5	5.8	14.6	17.5	⁴ E7208	129.1	7.8	19.7	—	⁷ E6732	131.3	7.9	20.7	22.0	↑
E8364	75.2	5.1	13.5	15.1	³ E6908	93.0	5.8	15.5	17.0	⁴ E774	129.4	7.6	19.2	21.3	⁷ E7094	132.3	7.8	19.7	22.1	↑
E7319	75.0	5.3	14.3	15.8	² E6784	92.4	6.4	18.0	18.9	⁴ E6375	115.0	7.1	17.1	20.5	⁷ E6992	131.0	7.2	17.1	21.5	↑
E7725	74.1	5.4	12.1	15.5	³ E8124	100.2	6.0	16.5	19.3	⁴ E6680	101.4	6.2	14.4	19.5	⁷ E6213	139.0	8.3	21.2	22.5	↑
E6487	76.0	5.3	13.4	15.5	³ E7205	95.1	5.8	13.4	17.7	⁴ E6569	125.1	7.1	17.3	22.0	⁷ E6242	109.6	6.7	17.1	18.2	↑
E6303	79.7	5.3	12.4	15.5	³ E6538	103.8	7.0	15.6	19.5	⁴ E7293	132.5	7.5	18.8	20.9	⁷ E6241	128.6	7.2	18.1	21.4	↑
E7326	78.0	5.4	—	16.1	³ E7072	109.4	6.9	17.7	20.5	⁴ E6085	120.2	7.9	18.2	21.1	⁷ E6241	131.0	7.2	17.1	21.5	↑
					³ E6905	104.5	7.2	19.1	19.1	⁴ E5323	131.9	7.7	—	22.3	⁷ E8300	131.0	7.2	17.1	21.5	↑
					³ E7786	102.7	6.3	14.3	18.7	⁴ E625	133.4	7.8	—	22.1						↑

① Spongy both ends

a widely separated distal trochleae

- 1 ① posteriors no shape to trochleae (note middle one espec, intra points blob)
- 2 ② " slight shaping to mid troch, edge ^{sharp} with 2 dist dist points
- 3 ③ anteriorly mid troch shows more shape & less sponginess

b distal troch. budding

- 4 ① none united but show tendency to (troch pretty well formed)
 - 5' ② first troch united, 4th not
 - 6 ③ all troch united
- a' 4th not quite (see stage 2a below)
- b' 4th completely united (see 2b below)

② Distal end no longer spongy

- 7 a Proximal end still broadly spongy (see stage 163'6' above)
17 + points to mid. met. prox. The beginning to flatten
- 8 b Proximal end spongy but sharply flattened proximally fusion with tarsus (see 3'6' above)
- 9 c tarsus & metabasit united but not tib ant. scar
- 10 d tib. ant. tub present leg begins to ossify
- 11 e leg. complete
- 12 f spur begins

20

20.7

7.9

Group 1 20) 320.8 57 82.88 Turkey

		13.0	4.7	14) 39.38	19.504		
	20) 260.5	13.0	4.7	14) 39.38	19.504		
	20) 260.5	13.0	4.7	14) 39.38	19.504		
K6147	78.0	—	5.8	—	6.0	7.4	
E6326	77.8	16.2	5.8	—	20.8	7.4	13
E6761	75.8	15.8	5.5	—	20.8	7.4	4
E7325	78.0	16.1	5.5	—	20.6	7.0	4
E6487	75.8	15.7	5.3	13.3	20.7	6.9	16
E7319	75.2	15.7	5.3	13.9	20.9	7.0	4
E8364	75.1	15.0	5.1	13.5	20.0	6.8	13
E7721	74.1	15.4	5.4	12.3	20.8	7.2	4
E7228	71.7	14.0	5.2	—	19.5	7.1	4
E7548	68.7	14.0	5.2	12.2	20.4	7.5	4
E8264	71.4	15.0	5.2	—	21.0	7.2	13
E6456	65.1	13.4	4.5	11.2	20.6	6.9	16
G6450	60.1	13.0	4.8	9.6	21.6	7.9	16
K1082	59.4	12.0	4.3	9.7	20.2	7.5	
E7274	56.2	11.7	4.4	9.0	20.8	7.8	13
E7228	54.3	11.6	4.4	—	21.3	8.0	4
G6444	54.5	11.8	4.5	8.7	21.7	8.2	16
G6446	54.6	—	4.4	—	—	—	13
E8361	53.3	—	—	—	—	—	
G6460	50.4	10.7	4.1	8.7	20.8	7.9	16
K1081	50.6	10.2	4.2	8.7	20.1	8.3	
G6481	43.8	9.3	3.8	7.7	21.4	8.6	16
G6484	43.3	9.0	3.7	8.3	20.8	8.1	16
G6431	42.5	8.7	3.6	7.9	19.5	7.5	16

20) 150.8
140
108
100

150.4
7.4
157.8

15

19.8
2574
13
906
78
126

Group 2

1532968
120
96
90
68
80
86.45

86
17)14619
136
101
102

	12.4	16.1	19.8	25.7	31.8	38.9	Pt
✓ E8216	81.5	16.8	5.9	13.8	20.2	6.76	16
✓ E8611	74.1	15.0	5.0	—	20.2	6.76	16
✓ G6167	81.0	16.2	5.4	13.6	20.0	6.67	4
✓ E6303	79.7	15.3	5.1	12.5	19.2	6.90	4
✓ E7682	79.5	15.6	5.0	12.4	19.8	6.92	4
✓ E7263	82.4	16.0	5.9	12.8	19.4	7.16	36
✓ G4973	82.8	16.5	6.2	13.6	19.9	7.48	14
✓ E6251	86.0	17.2	6.0	13.0	20.0	6.98	16
✓ E5650	84.3	17.9	6.5	14.7	21.2	7.7	13
✓ E8313	87.8	16.5	6.0	14.4	18.8	6.84	13
✓ E8315	87.0	—	6.2	14.7	—	7.13	4
✓ E6150	87.2	18.3	6.3	—	—	7.2	4
✓ E6856	87.7	17.6	6.0	14.5	20.0	6.84	3
✓ E8052	93.0	17.7	6.5	13.7	19.0	6.99	4
✓ E6784	92.6	18.9	6.4	17.7	20.4	6.91	28
✓ G6282	95.3	19.2	6.5	16.3	19.5	6.62	77
✓ E5538	103.8	19.4	7.1	17.4	18.7	6.85	4
✓ E7072	104.3	20.5	6.9	17.1	18.2	6.30	4
✓ E6920	105.7	19.3	7.3	—	18.3	6.31	3
✓ E7124	100.3	19.2	6.0	16.7	19.6	5.97	3
✓ E7990	88.4	16.4	6.0	13.4	18.5	6.8	

6.8
3)204
18
24

6.1
13)294
28
14
2114
517

17
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17)19619
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29 $\frac{92}{4593}$

Group 3
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27 $\begin{array}{r} 16.6 \\ 20 \overline{) 332.8} \\ \underline{40} \\ 228 \\ \underline{200} \\ 28 \end{array}$ $\begin{array}{r} 6.4 \\ 6.8 \\ 6.5 \\ 19.7 \end{array}$ group 4

$$\begin{array}{r} 61 \\ 7 \overline{) 430} \\ \underline{42} \\ 10 \end{array}$$
$$\begin{array}{r} 739.9 \\ 1963.4 \\ \hline 2703.3 \end{array} \quad 122.87$$

102 } 18 ^{68A} 8
103 } 18 79?

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66086	101.8	12.6	6.3	14.3	17.5	6.2	16
E7678	102.3	18.1	6.3	14.4	17.7	6.1	4
E8300	106.7	19.9	6.9	14.7	18.6	6.4	13
E8348	106.0	18.7	6.5	—	17.4	6.1	13
E7804	105.0	17.8	6.7	16.0	17.0	6.4	4
E8487	109.8	18.3	6.5	17.0	16.7	5.4	6
66015	108.7	17.6	6.5	14.6	16.2	5.9	4
E8564	125.0	21.8	7.2	17.1	17.5	6.7	6
E6153	126.8	22.1	7.9	22.0	18.3	6.1	16
E5383	131.8	22.4	7.8	—	17.0	5.4	16
E6085	130.2	21.2	8.0	17.9	16.3	6.1	16
E7393	132.0	20.9	7.6	—	15.7	5.7	4
E6891	133.4	20.1	7.6	20.1	15.0	5.7	4
E9044	128.4	21.3	7.2	18.0	16.6	5.6	4
E7284	134.8	22.2	7.8	19.0	16.1	5.7	4
K3093	132.4	21.9	7.7	19.9	16.1	5.8	2
E7082	131.0	21.5	7.4	17.2	16.4	5.6	4
E8292	133.3	22.0	7.8	—	16.5	5.8	13
E827	134.1	—	7.6	20.6	—	5.6	4
E7927	133.2	21.2	7.6	20.0	15.9	5.7	4
E7421	131.1	22.0	7.8	20.7	16.7	6.1	4
E1908	130.5	22.5	8.0	20.0	17.2	6.1	4

The figure displays handwritten mathematical work on a grid background. The work includes several long division problems and other calculations:

- Top Left:** A vertical calculation starting with 173, followed by 1213, and then 2149.
- Top Center:** A division problem showing 10 divided by 14, resulting in 0.7142857.
- Top Right:** A division problem showing 1057 divided by 7, resulting in 151.
- Middle Left:** A division problem showing 14 divided by 23, resulting in 0.6086956.
- Middle Center:** A division problem showing 14 divided by 80, resulting in 0.175.
- Middle Right:** A division problem showing 14 divided by 150, resulting in 0.0933333.
- Bottom Left:** A division problem showing 14 divided by 23, resulting in 0.6086956.
- Bottom Center:** A division problem showing 14 divided by 150, resulting in 0.0933333.
- Bottom Right:** A division problem showing 14 divided by 150, resulting in 0.0933333.

The handwriting is in black ink, and the grid lines are faint and light gray.

Group 5 - Prox. end of metatarsals flattened for
union with tarsals - no tarsus adhering

	a Length	c Dist	e sh	ba	ca
E6242	101.0	17.7	6.2	17.5	6.1
F6241	102.7	18.2	6.7	17.7	6.3
G6039	103.0	18.5	6.8	17.6	6.5
E6133	105.9	17.8	6.3	16.3	5.8
E7366	112.3	19.0	6.3	16.9	5.6
E5792	114.6	—	6.7	—	6.1
	<u>644.5</u>	<u>191.2</u>	<u>39.0</u>	<u>6</u>	<u>36.9</u> (6.1)
	107.4	18.2	6.5		
E5206	126.2	21.0	7.3	16.6	6.2
G5995	130.8	—	8.1	—	6.2
E5671	132.7	21.2	7.2	16.0	5.4
E6732	131.3	21.8	7.8	16.5	5.9
E6767	130.6	21.8	7.6	16.5	5.8
E5260	129.1	21.8	8.1	16.8	6.2
E8396	133.2	—	8.1	—	6.0
E7214	134.7	—	8.3	16.6	6.1
F5088	138.2	22.3	8.6	16.1	6.2
E6121	137.1	22.7	7.8	16.5	5.4
E7955	139.0	22.4	8.2	16.1	5.9
	<u>11) 14609</u>	<u>1750</u>	<u>1871</u>	<u>11) 65.5</u> (6.1)	
	132.8	21.8	7.9	16.7	5.5
				14.7	10.5
				<u>14) 2349</u>	
				167	
				942.107	

132.8
107.4
2 | 240.2
120.1

14
23

Group 5 ~~A~~ 6 (max end r rams still 1008
quite connected (circle until)
29 already have 4th.

$$13) 119.9 - 5' = 108.9$$

✓ E6406	110.7	12.3	6.6	15.4	5.9
✓ E7712	110.8	18.8	7.0	16.9	6.3
✓ E5871	114.1	—	6.7	—	5.8
✓ E6034	114.5	18.3	6.8	16.0	5.9
✓ E6866	110.7	18.7	6.6	16.7	5.9
✓ E6374	111.9	17.7	6.3	15.8	5.6
✓ E6587	115.0	—	—	—	—
✓ E6191	113.0	—	6.7	—	5.9
✓ C9153	117.5	18.1	6.0	15.4	5.3
✓ G5938	116.0	19.3	6.6	16.6	5.6
✓ E7101	119.1	18.6	7.2	16.5	6.3
✓ E6727	137.3	22.5	8.0	16.4	5.8
✓ F5363	134.8	22.7	7.7	16.9	5.7
✓ E5948	132.5	—	7.7	—	5.8
✓ E7449	138.8	23.0	7.7	17.2	5.7
✓ E5058	134.8	22.0	8.0	17.9	6.2
✓ E5244	143.4	22.5	7.8	15.6	5.4
✓ E4383	141.0	22.6	8.0	15.9	5.6
✓ E6600	143.2	21.8	—	15.2	—
✓ E6214	140.5	21.7	8.2	15.4	5.8
✓ E5081	143.5	23.0	8.3	16.0	5.8
✓ E6795	136.0	21.4	7.4	15.7	5.4
✓ E6187	137.0	22.1	—	16.1	—
✓ E5382	139.5	22.3	8.0	16.0	5.7

$$17) 23500 \quad 139.9 - 5' = 134.9$$

E8216	139.0	21.7	8.1	15.6	5.8
E5907	144.3	22.2	8.1	15.7	5.6
E6162	134.8	22.0	7.6	16.3	5.6
E6213	129.4	—	6.9	—	5.3
E8158	142.9	19.1	6.7	16.9	5.9
E5564	144.0	18.6	6.8	16.3	5.9

$$12) 703 \quad 6.8$$

$$12) 800 \quad 16.8$$

$$2) 2438 \quad 108.9$$

$$15) 117.5$$

$$15) 854$$

$$27) 1570 \quad 5.9$$

$$23) 3876 \quad 16.8$$

Tarsus completely united
with metatarsals (no crack)

Prox. area of metatarsals still porous tub. absent or loose or rough

Groups ~~of~~ now called groups

47
29
76

$$114.9 - 5 = 109.9$$

$$\begin{array}{r} 109.9 \\ 5 \overline{) 549.5} \\ \underline{50} \\ 49 \\ 45 \\ \underline{40} \\ 9 \\ 5 \\ \underline{5} \\ 0 \end{array}$$

$$\begin{array}{r} 57 \\ 31 \overline{) 1770} \\ \underline{96} \\ 81 \\ 51 \\ \underline{45} \\ 60 \end{array}$$

$$\begin{array}{r} 16.2 \\ 47 \overline{) 762} \\ \underline{94} \\ 82 \\ 74 \\ \underline{70} \\ 22 \\ 20 \\ \underline{20} \\ 0 \end{array}$$

E7914	110.8	18.7	7.0	16.9	6.3
E8358	110.0	19.0	6.8	17.3	6.1
E5972	110.6	18.4	6.3	16.1	5.7
E7036	109.8	18.2	6.4	16.5	5.8
E6736	111.4	18.0	6.6	16.1	5.9
E7934	111.8	17.8	6.4		
E6516	112.1	18.1	6.2	16.3	5.5

E8494	117.0	19.7	7.3	16.8	6.2
E5900	117.7	19.9	7.0	16.9	5.9
E5839	118.2	19.5	6.9	16.5	5.8

E5914	141.0	21.9	8.2	15.5	5.8
E5955	142.7	22.5	8.1	15.7	5.7
E8131	143.0	21.5	7.9	15.0	5.5

E7453	112.8	18.5	6.7	16.4	5.9
E5788	113.3	17.6	6.9	15.3	6.1
E7307	113.5	18.2	6.7	16.0	5.9

E7125	118.5	18.0	—	15.2	—
E6966	118.5	—	6.9	—	5.8

E7113	143.2	22.7	8.5	15.8	5.9
E5899	145.3	23.2	8.4	15.9	5.9

E8242	113.6	18.6	7.0	16.3	6.1
E7179	113.9	18.2	6.7	16.0	5.8
E6358	113.3	17.9	6.2	15.8	5.4

E7802	118.3	18.7	6.9	15.8	5.8
E8199	119.2	20.0	7.3	16.7	6.1
E7778	119.4	19.0	7.0	15.9	5.8

E6844	145.6	22.3	7.9	15.3	5.4
E5663	145.9	23.3	8.4	15.9	5.7
E6834	147.7	23.5	8.7	16.1	5.9

E7743	113.9	19.0	6.8	16.7	5.9
E8514	114.2	—	6.9	—	6.0
E6152	114.3	19.0	6.5	16.5	5.6

E7186	120.5	18.9	6.3	15.7	5.2
E6774	131.3	21.5	7.7	16.3	5.8

E8522	147.5	22.8	8.2	15.4	5.5
E6471	150.0	—	—	—	—

E7058	115.0	—	7.2	—	6.2
E5308	115.2	—	—	—	—
E8338	115.0	19.3	6.7	16.8	5.8

E6722	137.8	22.6	8.5	16.4	6.1
E639	132.8	22.2	7.5	16.7	5.6
E645	135.8	21.5	7.6	15.8	5.6

$$\begin{array}{r} 21 \overline{) 29643} \\ \underline{42} \\ 1411 \\ \underline{1411} \\ 0 \end{array}$$

$$\begin{array}{r} 20 \overline{) 1611} \\ \underline{160} \\ 11 \end{array}$$

$$\begin{array}{r} 20 \overline{) 1172} \\ \underline{100} \\ 172 \end{array}$$

E7023	115.1	18.5	7.0	16.0	6.0
E7744	115.2	19.5	7.3	16.9	6.3
E6971	115.4	18.2	6.8	15.7	5.9

E7737	138.4	22.9	8.2	16.5	5.9
E6106	135.8	22.3	7.5	16.4	5.5
E5352	139.4	22.3	8.0	16.0	5.7

$$\begin{array}{r} 51 \overline{) 2942} \\ \underline{255} \\ 392 \end{array}$$

E5085	116.0	18.3	6.8	15.7	5.8
E7976	116.3	19.3	6.8	16.5	5.8
K6141	116.8	—	—	—	—

E6580	140.0	23.0	8.2	16.4	5.8
E7822	140.3	—	8.0	—	5.7
E8414	140.8	—	8.0	—	5.8

$$\begin{array}{r} 1172 \\ 1210 \\ \underline{438} \\ 732 \end{array}$$

E7984	116.6	18.0	6.6	15.4	5.6
-------	-------	------	-----	------	-----

Sternum

✓
* 289448 - ~~||||~~ |||
288404 - ||

Pelvis

289448 - ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ |
288404 - |||

Carpus

288404 - |||
288402 - |
289448 - ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ |

$$\begin{array}{r} 14 \overline{) 118.6} \\ \underline{112} \\ 66 \\ \underline{56} \\ 108 \\ \underline{98} \\ 108 \end{array}$$

$$\begin{array}{r} 9.69 \\ \times 14 \\ \hline 3876 \\ 1260 \\ \hline 135.66 \end{array}$$

$$\begin{array}{r} 177^{\frac{1}{2}} \\ 202 \\ \hline \end{array}$$

$\begin{array}{r} 7020 \\ \times 60 \\ \hline 42120 \\ 42120 \\ \hline 421200 \end{array}$

10 20 2786.0
2786.0
600

81.879

190681

847.0

7744

260

7776

40

8872

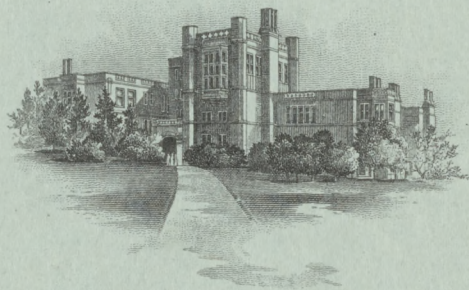
387

968

roof, 11
press, 1
sealed, 1
advice, 1
pro. J well, 1

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STEPHENS UNION

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IS YOUR OWN STORE; PATRONIZE IT WHENEVER POSSIBLE.

$$\begin{array}{r} 11711 \\ \times 11 \\ \hline 11711 \\ 11711 \\ \hline 128821 \end{array}$$

Parapavo from
Cita Canyon, Texas
up. Philo

Length 61.7 least
63.8 to ball at dist
67.8 greatest

ext Depth
Thru M. 1 17.5

int. depth
Thru M. 1 21.0

Be. max thick. 10.2

Ext pr. M. 1 10.6 (least)
12.2 (gr.)

extent of
capit process 11.6

Length intermetacarp
space 34.3



angle
about
45°
Meleagris
unipennis

$$\sigma_d = \sqrt{\sigma_1^2 + \sigma_2^2}$$

$$\sigma_m = \frac{\sigma}{\sqrt{n}}$$

$$(\sigma_m)_m = \sigma_1$$

$$(\sigma_m)_z = \sigma_2$$

$$\sigma_d = \sqrt{\left(\frac{\sigma}{\sqrt{n}}\right)_m^2 + \left(\frac{\sigma}{\sqrt{n}}\right)_z^2}$$

$$St \text{ Score} = \frac{M_m - M_f}{\sqrt{\left(\frac{\sigma}{\sqrt{n}}\right)_m^2 + \left(\frac{\sigma}{\sqrt{n}}\right)_z^2}}$$

$$\frac{4}{2} = 2$$

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MISCELLANEOUS RECEIPT

THE COMPTROLLER OF THE UNIVERSITY

Per

J. Peacock

Table VIII

38

CHART SHOWING SYSTEMATIC POSITION OF PARAPAVO CALIFORNICUA

RELATIVE TO MELEAGRIS GALLOPAVO, AGRIOCHARIS OCELLATUS AND:

PAVO CRISTATUS

	Phasianidae (Pavo)	Meleagridae	Meleagris Nearest M. but not identical (unlike M.)	Intermediate Between MTA and M. but not identical (unlike M.)	Agriocharis Between A. and M. but not identical (unlike M.)	unlike modern genera
Tarso-metatarsus						
1 General shape		X				
2 Inner foramen at distal end		X		X		
3 3rd ridge of hypotarsus	X				X	
4 Shape of spur					X+	
5 Distance of spur from distal end			X+			
Tibio-tarsus						
1 Cnemial crest		X	X+			
2 Relative breadth of distal end	X+				X+	
Fibula						X+
Femur						
1 Degree of pneumaticity		X+				
2 Pattern of inter muscular lines		X+				
3 Relative breadth of shaft		X+				
Carpo-metacarpus		X+				
Radius						
1 General shape		X				
2 Ridge at distal end on anconal side		X+			X+	
3 Tendinal groove						
Depth	X+				X+	
Extent			X+			
4 Distal end, on palmar side		X				
Ulna						
1 External glenoid facet		X+			X+	
2 Internal glenoid facet					X+	
3 Trochlea articulating with cuneiform					X	
4 <i>outside of distal end</i>	X				X	

	Phasianidae (Pavo)	Meleagridae	Meleagris	Agriocharis	
Humerus					
✓ 1 General shape		X			
Head					X+
2 Muscle scars		X+		X+	
Scapula					
✓ 1 General shape		X+			
2. Relative size of coracoidal and glenoidal facets				X+	
Coracoid					
1 Outer side of sternal end		X+			
2 Flexure of upper end		(X) XX			X+
3 Scapular facet		(X)			X+
4 Attachment of coraco-humeral ligament		X+		X	
5 Muscle line on inner side of posterior surface			X+		
6 Shape of head			X+		
Furculum					
✓ 1 General shape					
Anterior view			X+		
Lateral view			X+		
2 Furcular process		X+	X+		X
3 Osseous area dorsal to furcular process					
Breadth			X		
Depth	X			X	
4 Muscle pattern					X
Sternum					
✓ 1 Carina					
Shape		X+			
Breadth		X+			
2 Manubrium		X+		X	
3 Inner (dorsal) surface		X			
Skull					
✓ 1 General shape		X+		X+	
2 Relative height of parietal and fronto-parietal regions		X+			X
3 Region of fronto-parietal suture					X+
4 Region of frontal suture					X+
5 Breadth of frontal at widest portion at fronto-nasal suture.				X+	

	Skull	Scapula	Ulna	Tarsometatarsus	Tibia	Radius	Culmen
--	-------	---------	------	-----------------	-------	--------	--------

Meleagris = $|6.77|^2 + |5.40|^2 + |7.82|^2 + |1.32|^2 + |4.79|^2 + |5.57|^2 =$
 compared to
 Parapavo.

+ $|3.38|^2 +$

Agriocharis = $|0.41|^2 + |0.60|^2 + |3.44|^2 + |1.24|^2 + |3.19|^2 =$
 compare to
 Parapavo.

Summary of relationship of Parapavo
 & Meleagris & Agriocharis on the basis
 of measurements.¹⁰

¹⁰ ~~See~~ Frost, formula VI

Standard scores

✓
Meleagris

✓
Agrioceros

✓
Pavo

Skull	6.77 -	.41 -	
Scapula	5.4 +	.6 -	
Ulna	7.82 +	3.38 +	2.903 - 1
Humerus	3. -	scarcity of material	
Tarso-metatarsal	X 1.32 +	(3.44 +)	(2.30 +)
Tibia-tarsus b to a	4.791 -	1.241 +	1.3104 +
d to c	5.571 -	3.187 +	5.229 +

Structural characters

* Skull			X	
Stemum	X			
Clavicle	X			
Coracoid	?		X	
* Scapula			X	
* Humerus		X		
* Ulna			X	?
Radius				
Carpometatarsal		X		
* Tarsus		X		
* Tibio-tarsus	crest X		Proct X	Brach X
* Tarsometatarsal	X		sputty X X	hypo X
Pelvis		X		

cat. # femora U.S. N.M.



Table I

2nd series

bba

ulua
Parafavo

$$\sum x = 143603$$

$$n = 133$$

$$M_x = 107972$$

$$\sum x^2 = 15524.00$$

$$\frac{\sum x^2}{n} = 116.7218$$

$$M_{x^2} = 116.5795$$

$$\frac{\sum x^2}{n} - M_{x^2} = .1423$$

$$\sigma = .3772$$

$$\sqrt{133} = 11.5326$$

$$\sigma_m = .032707$$

$$\sigma_m^2 = .00107$$

$$\begin{array}{r} 3.38 \\ 134 \overline{) 452.8} \\ \underline{402} \\ 508 \\ \underline{402} \\ 1068 \\ \underline{1072} \end{array}$$

Parafava Humerus
Length 51

$$\sum x = 8501.20$$

$$n = 62$$

$$M_x = 137.1161$$

$$\sum x^2 = 1166833.74$$

$$\frac{\sum x^2}{n} = 18819.89$$

$$M_{x^2} = 18800.82$$

$$\frac{\sum x^2}{n} - M_{x^2} = 19.07$$

$$\sigma = 4.3669$$

$$\sqrt{62} = 7.8740$$

$$\sigma_m = .5546$$

$$\sigma_m^2 = .3075$$

Melaeus

$$\sum x = 2539.6$$

$$n = 18$$

$$M_x = 141.0888$$

$$\sum x^2 = 358760.32$$

$$\frac{\sum x^2}{n} = 19931.13$$

$$M_{x^2} = 19906.04(96)$$

$$\frac{\sum x^2}{n} - M_{x^2} = 25.09$$

$$\sigma = 5.00899$$

$$\sqrt{18} = 4.243$$

$$\sigma_m = 1.18063$$

$$\sigma_m^2 = 1.3936$$

$$\sigma_{mp} + \sigma_{mm} = 1.7011$$

$$\sigma_d = 1.3$$

$$M_{pp} - M_{mm} = 3.97 -$$

$$\sigma_{tsc} = 35$$

Apply to Lemur

(1 in 100 chances of same sp.)

Table I

b to a

ulua

meleagris

Agriocharis

Pavo

Σx

$\Sigma x = 31.5$

$\Sigma x = 45.0$

$n = 29$

$n = 3$

$n = 4$

$M_x = 10.1445$

$M_x = 10.5$

$M_x = 11.25$

$\Sigma x^2 = 2989.38$

$\Sigma x^2 = 330.81$

$\Sigma x^2 = 506.52$

$\frac{\Sigma x^2}{n} = 103.0821$

$\frac{\Sigma x^2}{n} = 110.27$

$\frac{\Sigma x^2}{n} = 126.6300$

$M_{x^2} = 102.9109$

$M_{x^2} = 110.25$

$M_{x^2} = 126.5625$

$\frac{\Sigma x^2}{n} - M_x^2 = .1712$

$\frac{\Sigma x^2}{n} - M_x^2 = .02$

$\frac{\Sigma x^2}{n} - M_x^2 = .0675$

$\sigma = .4138$

$\sigma = .1414$

$\sigma = .2598$

$\sqrt{29} = 5.3852$

$\sqrt{3} = 1.7321$

$\sqrt{4} = 2$

$\sigma_m = .0768$

$\sigma_m = .08163$

$\sigma_m = .1299$

$\sigma_m^2 = .005898$

$\sigma_m^2 = .006663$

$\sigma_m^2 = .0169$

$M_{pp} - M_m = .6527 +$

$M_{pp} - M_{ay} = .29720 +$

$M_{pp} - M_p = .4528$

$\sigma_m^2 pp + \sigma_m^2 m = .006968$

$\sigma_m^2 pp + \sigma_m^2 m_{ay} = .00773$

$\sigma_m^2 pp + \sigma_m^2 m_p = .023563$

$\sigma_d = .08347$

$\sigma_d = .08792$

$\sigma_d = .1533$

$Stsc = 7.82 \sigma +$

$Stsc = 3.380 + 6$

$Stsc = 2.953$

$$\begin{array}{r} 135 \\ 135 \\ \hline 67.5068938 \\ 4050010717956 \\ 135 \\ \hline 182256968 \end{array}$$

$$\begin{array}{r} 135 \\ 135 \\ \hline 67.5068938 \\ 4050010717956 \\ 135 \\ \hline 182256968 \end{array}$$

$$\begin{array}{r} .006663 \\ .00107 \end{array}$$

$$\begin{array}{r} .04 \\ .20 \\ .20 \\ .004000107 \\ .00107 \\ .0169 \\ .01799 \end{array}$$

$$\begin{array}{r} 11.2500 \\ 10.7972 \\ 11.2500 \\ 11.2500 \\ 11.2500 \\ 11.2500 \\ 11.2500 \\ 11.2500 \\ 11.2500 \\ 11.2500 \end{array}$$

Table VII

Sibia. tarsus

2nd Series

Ratio b to a

Parafavo

Ratio d to c

$$\sum x = 331.30$$

$$n = 35$$

$$M_x = 9.4657$$

$$\sum x^2 = 3140.31$$

$$\frac{\sum x^2}{n} = 89.7231$$

$$M_{x^2} = 89.5994$$

$$\frac{\sum x^2}{n} - M_{x^2} = .1237$$

$$\sigma = .3517$$

$$\sqrt{35} = 5.9161$$

$$\sigma_M = .05945$$

$$\sigma_M^2 = .00353$$

$$\sum x = 2795.2$$

$$n = 35$$

$$M_x = 79.8628$$

$$\sum x^2 = 223700.48$$

$$\frac{\sum x^2}{n} = 6391.4422$$

$$M_{x^2} = 6378.0668$$

$$\frac{\sum x^2}{n} - M_{x^2} = 13.3754$$

$$\sigma = 3.6573$$

$$\sqrt{35} = 5.9161$$

$$\sigma_M = .61819$$

$$\sigma_M^2 = .38216$$

Table VIII Tarsus - metatarsus

b to a Parafavo

Meleagris

Ag.

Pavo

$$\sum x = 2242.3$$

$$n = 49$$

$$M_x = 45.7612$$

$$\sum x^2 = 102747.91$$

$$\frac{\sum x^2}{n} = 2096.8961$$

$$M_{x^2} = 2094.0874$$

$$\frac{\sum x^2}{n} - M_{x^2} = 2.8087$$

$$\sigma = 1.6759$$

$$\sqrt{49} = 7$$

$$\sigma_M = .239414$$

$$\sigma_M^2 = .057319$$

$$\sum x = 269.5$$

$$n = 6$$

$$M_x = 44.9166$$

$$\sum x^2 = 12117.71$$

$$\frac{\sum x^2}{n} = 2019.6183$$

$$M_{x^2} = 2017.5009$$

$$\frac{\sum x^2}{n} - M_{x^2} = 2.1174$$

$$\sigma = 1.45510$$

$$\sqrt{6} = 2.4495$$

$$\sigma_M = .59404$$

$$\sigma_M^2 = .3529$$

$$40.0$$

$$41.9$$

$$M_{pp} - M_m = .8446 +$$

$$\sigma_{M_{pp}}^2 + \sigma_{M_m}^2 = .410219$$

$$\sigma_d = .64047$$

$$s_{ta} = 1.32 + \sigma$$

$$M_{pp} 45.7612$$

$$\frac{Ag - 40}{5.7612}$$

$$\div \sigma = 3.44 \sigma_s +$$

$$M_{pp} 45.7612$$

$$\frac{Pavo 41.9000}{3.8612}$$

$$\div \sigma = 2.30 \sigma_s +$$

Table III

Scaevola natiobona

Parapavo

$\Sigma x = 529.9$

$n = 8$

$Mx = 66.2375$

$\Sigma x^2 = 35270.65$

$\frac{\Sigma x^2}{n} = 4408.83125$

$Mx^2 = 4387.4064$

$\frac{\Sigma x^2}{n} - Mx^2 = 21.4248$

$\sigma = 4.6284$

$\sqrt{\sigma} = 2.8284$

$\sigma_m = 1.6364$

$\sigma m^2 = 2.6778$

$M_{xpp} - M_{xm} = 11.304$

$\sigma m_{pp}^2 + \sigma m_m^2 = 4.3936$

$\sigma_d = 2.09$

$Stsc = 5.4 \sigma$

Meleagris

439.5

8

549375

24254.85

3031.85625

3018.1289

13.7273

3.70501

2.8284

1.3099

1.7158

ppromel

Agriochanis

270.3

4

67.575

18300.17

4575.0425

4566.3806

8.6619

2.9431

$\sqrt{4} = 2$

1.47155

2.1655

$M_{xpp} - M_{xA} = 1.3375$

$\sigma m_{pp}^2 + \sigma m_A^2 = 4.8433$

$\sigma_d = 2.2$

$Stsc = 1.6 \sigma$

~~$$\begin{array}{r}
 1341 \\
 341 \\
 1341 \\
 7364 \\
 4023 \\
 1341 \\
 1818281
 \end{array}$$~~

~~$$\begin{array}{r}
 66.2 \quad 67 \\
 54.9 \quad 66 \\
 11.3 \quad 1.9
 \end{array}$$~~

9d 23

OK
check

TABLE V

15d

Measurements of Ulna

Meleagris

5-65A

Catalogue No.	Greatest Length	Breadth of Distal End	Antero-post. Breadth of Shaft	Transverse Breadth of Shaft	Ratio of Breadth of Distal End to Greatest Length
288403	150.8mm.	15.0mm.	10.3mm.	9.0mm.	9.570 90.25
288403	150.8	15.0	10.0	8.2	9.570 90.25
289448	144.5	14.55	9.9	8.0	10.0 100.00
and	144.1	14.6	10.6	8.3	10.3 106.99
288404	140.2	14.3	9.4	7.8	10.1 102.01
	138.0	15.0	10.5	8.0	10.79 136.42
	134.9	13.0	8.8	6.7	9.6 92.16
	121.5	12.5	8.2	6.6	10.2 104.04
	121.4	12.5	8.4	6.5	10.2 104.04
	121.0	12.3	8.4	6.8	10.1 102.01
	121.0	11.6	8.3	6.7	9.5 90.25
	120.5	12.8	8.6	6.8	10.6 112.36
	120.4	12.4	8.5	6.9	10.3 106.09
	120.2	12.0	8.8	7.7	9.9 98.01
	119.7	11.9	8.4	6.4	9.9 98.01
	119.6	12.0	8.1	7.0	10.0 100.00
	119.6	12.3	8.8	6.4	10.2 104.04
	118.9	12.5	8.9	7.0	10.5 110.25
	118.8	11.8	8.2	7.0	9.9 98.01
	118.7	11.7	7.8	6.4	9.2 96.04
	118.3	12.3	8.4	6.6	10.4 108.16
	116.3	11.5	8.0	6.1	9.9 98.01
	115.7	13.0	8.3	7.3	11.2 125.44
	115.3	11.7	8.1	6.6	10.2 102.01
	115.2	12.8	8.1	7.4	11.1 123.21
	114.5	11.5	8.2	6.3	10.4 108.16
	113.9	11.6	7.7	6.0	10.1 102.01
	112.6	11.2	8.3	6.3	9.9 98.01
	111.1	11.3	8.7	6.7	10.2 104.04

average 10.92 103.07

coll. of L.H. Miller

Agriocharis

19851	126.8	13.3	9.1	7.5	10.4
19851	126.8	13.3	8.7	7.4	10.4
not Mus.	107.5	11.6	7.6	6.0	10.7

Pavo

L.H. Miller 208	121.9	14.1	9.1	7.5	11.5
208	121.3	14.0	8.6	6.8	11.5
L.A. Mus. 95	107.6	11.8	8.0	7.3	10.9
95	107.3	11.9	8.0	7.0	11.1

mean 10.5

mean 11.2

293011.96
29
111
87
249
232
176
174
200

288718

Table V Parafavo ~~Eagles~~ of Rancho La Brea

Measurements of U_{na} .

Parafavo californicus

Fossil

$$(a) \quad M_{U_f} = \frac{\sum U}{n} = \frac{1436.03}{133} = 10.79.$$

$$10.79 \pm .6479.$$

$$(b) \quad \sigma_{U_f} = \sqrt{\frac{\sum U^2}{n} - M_{U_f}^2} = \sqrt{\frac{15494.34}{133} - (10.79)^2} = .6479$$

2m. case.

Modern Melaeagis gallopavo

$$(c) \quad M_{U_m} = \frac{\sum U}{n} = 10.14$$

$$(d) \quad \sigma_{U_m} = \sqrt{\frac{\sum U^2}{n} - M_{U_m}^2} = \sqrt{\frac{2989.38}{29} - (10.14)^2} = .510$$

Fossil

$$(e) \quad \sigma_{M_{U_f}} = \frac{\sigma_{U_f}}{\sqrt{n}} = \frac{.6479}{\sqrt{133}} = \frac{.6479}{11.53} = .056$$

$$10.79 \pm .056$$

var. of mean.

$$(f) \quad (.056)^2 = .003136$$

$$(g) \quad \sigma_{M_{U_m}} = \frac{\sigma_{U_m}}{\sqrt{n}} = \frac{.510}{\sqrt{29}} = \frac{.510}{5.385} = .094$$

$$(h) \quad (.094)^2 = .008836$$

$$(i) \quad \frac{\bar{M}_{U_f} - \bar{M}_{U_m}}{\sqrt{(\sigma_{M_{U_f}})^2 + (\sigma_{M_{U_m}})^2}} = \frac{10.79 - 10.14}{\sqrt{.003136 + .008836}} = \frac{.65}{\sqrt{.011972}} = \frac{.65}{.11}$$

= 6 σ s.

σ_d should be $\times 3$ for safety

$$\left| \frac{m_{x_1} - m_{x_m}}{\sigma_{dx}} \right|^2 + \left| \frac{m_{y_1} - m_{y_m}}{\sigma_{dy}} \right|^2 + \left| \frac{m_{z_1} - m_{z_m}}{\sigma_{dz}} \right|^2 > 0 \quad \text{for correct species}$$

$$\left| \frac{m_{x_1} - m_{x_m}}{\sigma_{m_{x_m}}} \right|^2 + \text{etc.}$$

This is
absolutely
OK.

7

57	6474	129.8
58	6552	129.6
59	G5993	126.5
60	E5412	124.0

a Greatest
 129.8
 129.6
 126.5
 124.0
 509.9

38.8 = aver. of 139.3
 8 Dist. from
 middle nucleus
 top 57.2
 64.3
 60.4
 59.4

width
 44.8
 47.7
 47.7
 47.9
 mean 45.6

$$\begin{array}{r} 7555.1 \\ 509.9 \\ \hline 60 \overline{) 8065.0} \quad (134 \\ \underline{60} \\ 206 \end{array}$$

Meleagris galapago

133.8	61.0	45.7
145.6	65.8	45.1
149.7	68.2	45.6
153.9	68.1	44.2
152.5	64.5	42.2
162.0	76.1	46.9

180
265
240
25

Agriocharis ocellatus

19851	136.8	54.8	40.7
-------	-------	------	------

$$\begin{array}{r} 44.9 \\ 63693 \\ \hline 24 \\ 29 \\ \hline 29 \\ 55 \end{array}$$

Pavo cristatus

208	138.2	58.0	44.1
-----	-------	------	-----------------

$$\begin{array}{r} 60 \\ \hline 238 \\ 180 \\ \hline 531 \\ 480 \\ \hline 516 \end{array}$$
$$\begin{array}{r} 7821.2 \\ 129.8 \\ \hline 129.6 \\ 58 \overline{) 80806} \\ \underline{58} \\ 228 \\ \underline{17} \\ 540 \\ \underline{522} \\ 186 \end{array}$$

$\delta = 1.098$

♀ ♂

Handwritten calculations on lined paper:

Left column (vertical addition):

$$\begin{array}{r} 264 \\ 172 \\ 41 \\ 45 \\ 184 \\ 141 \\ 144 \\ 98 \end{array}$$

Top right (division):

$$\begin{array}{r} 1089 \\ 990 \\ 99 \end{array}$$

Bottom right (division):

$$\begin{array}{r} 1089 \\ 990 \\ 99 \end{array}$$

Bottom left (division):

$$\begin{array}{r} 24 \overline{) 1089} \\ \underline{96} \\ 129 \\ \underline{120} \\ 90 \end{array}$$

Tibia-tarsus

209

36 9

No.	Mus. NO.	Length	Distal end	Breadth of	Depth of
1.	E6021	212.2	20.1	11.3	8.8
2.	7085	211.1	20.4	11.7	9.1
3.	7965	211.1	19.4a	11.9	9.5
4.	6013	210.5	20.5	11.8	9.2
5.	6020	210.1	19.9	11.8	8.9
6.	5403	207.1	19.4	11.1	8.7
7.	5245	206.0	19.3	11.8	9.1
8.	6111	205.7	19.1	11.7	9.3
9.	F6993	205.1	18.7	12.0	9.0
10.	E5029	204.6	19.5	11.3	9.2
11.	7170	204.0	19.3	12.0	8.9
12.	8432	203.1	19.4	12.3	9.6
13.	5498	202.0	18.7	11.7	9.3
14.	5418	200.4	20.1	10.7	8.7
15.	5261	198.9	19.3	11.4	9.2
16.	6163	198.6	18.2	11.0	8.9
17.	5171	198.2	18.6	11.3	8.7
18.	5780	198.0	19.1	19.1	8.0
19.	6584	197.1	19.9	10.0	8.1
20.	7943	195.4	19.7	10.3	8.5
21.	7873	194.0a	18.8	11.0	8.5
22.	5482	192.6	19.4	11.7	9.2
23.	8091	191.7	19.1	11.4	8.7
24.	8039	190.1	17.3	10.8	8.8
25.	5979	173.6	15.4	10.7	8.3
26.	5432	172.9	16.1	9.3	7.5
27.	6101	172.0	16.1	9.1	7.7
28.	6670	169.0	15.9	9.6	7.2
29.	5203	168.2	15.5	9.4	8.1
30.	6290	168.0	15.8	9.0	7.7
31.	5834	167.2	14.3	9.2	6.9
32.	7583	166.9	16.7	8.6	7.9
33.	7881	163.7	16.4	9.4	7.6
34.	7009	158.1	15.0	9.0	7.5
35.	7486	156.9	15.4	8.3	6.8
36.				9.0	7.5

Length from proximal articular surface to outside of distal end

Table II (part 2)

83.7
3.9
79.8

484.76

6684.1

4849.6

117/836

11

73

66

76

66

999 35/2195.9-1904.3 74
2418
34547
315 54
2044

901740
720
200

91.9 - 74.0
198 - aver Pp.

93.4 - 81.2
aver 87.4
mal.

77.3 - 75.5
aver 76.2
Pavo

77.4 - 76.8
aver 77.2
ag

6113.935
43760
15.895

Libia taureus σ_d d to c

$$Pp \ M = 79.86$$

$$\sigma = 3.716$$

$$n = 35$$

$$\sigma_m = .628$$

$$Pm \ M = 87.54$$

$$\sigma = 4.764$$

$$n = 14$$

$$\sigma_m = 1.273$$

$$Ag \ M = 77.67$$

$$\sigma = .940$$

$$n = 4$$

$$\sigma_m = .47$$

$$Pavo \ M = 76.02$$

$$\sigma = .779$$

$$n = 4$$

$$\sigma_m = .3895$$

$$Pp \ \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{3.716}{\sqrt{35}} = \frac{3.716}{5.9161} = .628$$

$$Mm \ \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{4.764}{\sqrt{14}} = \frac{4.764}{3.741} = 1.273$$

$$Pp \ v. \ \sigma_{rel} \ M_p - M_m$$

$$\sigma_d = \frac{M_p - M_m}{\sqrt{(\sigma_{mp})^2 + (\sigma_{mm})^2}} = \frac{79.86 - 87.54}{\sqrt{(.628)^2 + (1.273)^2}} = \frac{7.68}{\sqrt{.394384 + 1.6129}}$$

$$= \frac{7.68}{\sqrt{2.007284}} = \frac{7.68}{1.417} = 5.42$$

$$Pp \ v. \ \sigma_{rel} \ M_p - M_{ag}$$

$$\sigma_c = \frac{M_p - M_{ag}}{\sqrt{(\sigma_{mp})^2 + (\sigma_{mag})^2}} = \frac{79.86 - 77.67}{\sqrt{(.628)^2 + (.47)^2}} = \frac{2.19}{\sqrt{.394384 + .2209}} = \frac{2.19}{\sqrt{.615284}} = \frac{2.19}{.785} = 2.79$$

$$ag \ \sigma_{mag} = \frac{\sigma}{\sqrt{n}} = \frac{.940}{\sqrt{4}} = \frac{.940}{2} = .47$$

$$Pavo \ \sigma_{mp} = \frac{\sigma}{\sqrt{n}} = \frac{.779}{\sqrt{4}} = \frac{.779}{2} = .3895$$

$$Pp \ v. \ Pavo$$

$$\sigma_c = \frac{M_{pp} - M_p}{\sqrt{(\sigma_{mp})^2 + (\sigma_{mp})^2}} = \frac{79.86 - 76.02}{\sqrt{(.628)^2 + (.3895)^2}} = \frac{3.84}{\sqrt{.394384 + .151321}} = \frac{3.84}{\sqrt{.545705}} = \frac{3.84}{.7383} = 5.21$$

Ibia-vaensis sd b to a

<u>Rp</u>	<u>Mel.</u>	<u>Ag</u>	<u>Pavo</u>
$M = 9.46$	$M = 9.98$	$M = 9.2$	$M = 9.4$
$\sigma = .472$	$\sigma = .28284$	$\sigma = .41231$	$\sigma = .4062$
$n = 35$	$n = 14$	$n = 4$	$n = 4$
$\sigma_m = .07981$	$\sigma_m =$	$\sigma_m =$	$\sigma_m =$

$$\text{Parapavo } \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{.472}{\sqrt{35}} = \frac{.472}{5.91} = .07981$$

$$\text{Melagris } \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{.28284}{\sqrt{14}} = \frac{.28284}{3.74} = .0756$$

$$\text{Aegochanis } \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{.41231}{\sqrt{4}} = \frac{.41231}{2.0} = .20615$$

$$\text{Pavo } \sigma_m = \frac{\sigma}{\sqrt{n}} = \frac{.4062}{\sqrt{4}} = \frac{.4062}{2} = .2031$$

Rp vs Mel. sd

$$\frac{M_{rp} - M_m}{\sqrt{(\sigma_{m_{rp}})^2 + (\sigma_{m_m})^2}} = \frac{9.46 - 9.98}{\sqrt{(.07981)^2 + (.0756)^2}} = \frac{-.52}{\sqrt{.006375 + .005715}} = \frac{-.52}{\sqrt{.01209}} = \frac{-.52}{.3473} = -1.49$$

Rp vs Ag sd

$$\frac{9.46 - 9.2}{\sqrt{.07981^2 + .20615^2}} = \frac{9.46 - 9.2}{\sqrt{.006375 + .0426}} = \frac{.26}{\sqrt{.049}} = \frac{.26}{.221} = 1.18$$

Rp vs Pavo

$$\frac{9.46 - 9.4}{\sqrt{.07981^2 + (.2031)^2}} = \frac{9.46 - 9.4}{\sqrt{.006375 + .04135}} = \frac{.06}{\sqrt{.047725}} = \frac{.06}{.2184} = .27$$

Ulua Sigmas
Table V

Ulua

$$s = \sqrt{\frac{\sum x^2}{n} - (Mx)^2} = \sqrt{\frac{15494.34}{133} - (10.79)^2} = .6479$$

Meleayis

$$s = \sqrt{\frac{3989.38}{29} - (10.14)^2} = .510$$

Ogiachans

x	x ²
10.4	108.16
10.4	108.16
10.7	114.49

$$s = \sqrt{110.27 - 110.25} = \sqrt{.02} = .14142$$

$$\begin{array}{r} 3 \overline{) 31.5} \\ \underline{30} \\ 10.5 \end{array}$$

$$\begin{array}{r} 3 \overline{) 330.81} \\ \underline{330} \\ 110.27 \end{array}$$

$M^2 = 110.25$

Pavo

x	x ²
11.5	132.25
11.0	121.00
10.9	118.81
11.1	123.21

$$s = \sqrt{126.63 - 126.56} = \sqrt{.07} = .26458$$

$$\begin{array}{r} 4 \overline{) 45.0} \\ \underline{44} \\ 10.0 \\ \underline{9} \\ 1.00 \\ \underline{1} \\ .25 \end{array}$$

$$\begin{array}{r} 4 \overline{) 506.52} \\ \underline{504} \\ 252 \\ \underline{248} \\ 452 \\ \underline{448} \\ 432 \\ \underline{432} \\ 0 \end{array}$$

$M^2 = 126.56$

Ulva

 σ_d

Table V cont'd

Parapavo vs. Agriochanis + sp. Pavo

$$Pp. M = 10.79$$

$$\sigma = .6479$$

$$n = 133$$

$$\sigma_M = .056$$

$$Ag. M = 10.5$$

$$\sigma = .14142$$

$$n = 3$$

$$\sigma_M = .081$$

$$Pavo M = 11.25$$

$$\sigma = .26458$$

$$n = 4$$

$$\sigma_M = .13229$$

Agriochanis σ_M

$$= \frac{\sigma}{\sqrt{n}} = \frac{.14142}{\sqrt{3}} = \frac{.14142}{1.7321} = .081$$

Pavo $\sigma_M =$

$$= \frac{\sigma}{\sqrt{n}} = \frac{.26458}{\sqrt{4}} = \frac{.26458}{2} = .13229$$

✓ σ_d Pp. v Agriochanis ocellatus

$$= \frac{M_{Pp} - M_{Ag}}{\sqrt{(\sigma_{M_{Pp}})^2 + (\sigma_{M_{Ag}})^2}} = \frac{10.79 - 10.50}{\sqrt{(.056)^2 + (.081)^2}} = \frac{10.79 - 10.5}{\sqrt{.003136 + .006561}}$$

$$= \frac{.29}{\sqrt{.009697}} = \frac{.29}{.0984} = 2.94^*$$

 σ_d Pp v Pavo cristatus

$$\sigma_d \frac{10.79 - 11.25}{\sqrt{(.056)^2 + (.13229)^2}} = \frac{10.79 - 11.25}{\sqrt{.003136 + .01751}} = \frac{10.79 - 11.25}{\sqrt{.020646}} = \frac{-.46}{.14125} = -3.25^*$$

.50 / .40 L.O

Table VII

Schio-Tarsus

Ratio of b to a Fossil

Fossil

$$\frac{\sum x}{n} = 9.46 \quad 9.46^2 = 89.4916$$

$$\frac{\sum x^2}{n} = \frac{3140.31}{35} = 89.7145$$

$$\sigma = \sqrt{897145 - 894916} = \sqrt{2229} = \underline{47.2}$$

Meleagris

$$\begin{array}{r} \sum x \\ \hline n \end{array} \quad \begin{array}{r} 9.8 \\ 9.0 \\ 9.8 \\ \hline 9.5 \end{array} \quad \begin{array}{r} \sum x^2 \\ \hline \end{array} \quad \begin{array}{r} 9604 \\ 10000 \\ 9604 \\ \hline 9604 \end{array}$$

$$\frac{\sum x}{n} = 9.98 \quad 9.98^2 =$$

$$\frac{\sum z^2}{n} = 99.68$$

$$s = \sqrt{99.68 - 99.60} = \sqrt{.08} =$$

$\tau = .28284$

$$14 \overline{) 139.7} \overline{) 9.98} \quad 14 \overline{) 104.04} \overline{) 99.68}$$

agnotus

$$\frac{\sum x}{n} = 9.2 \quad 9.2^2 = 84.64$$

$x^2 = 75.69$

79.21

94.09

90.25

$$4 \overline{) 329.24}$$

87.81

$$\frac{\sum x^2}{n} = 84.81$$

$$s = \sqrt{84.84 - 84.64} = \sqrt{.17} = .41231$$

Pavo

$$\frac{\sum x}{n} = \frac{376}{4} = 9.4 \quad 9.4^2 = 88.36$$

$$\begin{array}{r} x^2 = 79.21 \\ 82.81 \\ 96.04 \\ 96.04 \\ \hline \end{array} \quad \frac{\sum x^2}{n} = \frac{354.1}{4} = 88.525$$

$$\begin{array}{r} 354.10 \\ 88.525 \\ \hline \end{array}$$

$$s = \sqrt{88.525 - 88.36} = \sqrt{.165} = .4062$$

Table VII
 Bio - tarsus
 b nation d to c

Jaril

$$\frac{\sum x}{n} = \frac{2795.2}{35} = 79.86 \quad 79.86^2 = 6377.619$$

$$\frac{\sum x^2}{n} = \frac{223700.48}{35} = 6391.442$$

$$s = \sqrt{6391.442 - 6377.619} = \sqrt{13.8224} = 3.714$$

$$\begin{array}{r} 79.860 \\ \times 3.716 \\ \hline 26.144 \\ 79.860 \\ \times 3.716 \\ \hline 83.576 \end{array}$$

Meleagris

$$\frac{\sum x}{n} = 87.54 \quad (87.54)^2 = 7663.251$$

$$\begin{array}{r} 87.54 \\ \times 4.764 \\ \hline 92.304 \\ 82.776 \end{array}$$

$$\frac{\sum x^2}{n} = \frac{107603.84}{14} = 7685.985$$

$$s = \sqrt{7685.985 - 7663.251} = \sqrt{22.734} = 4.764$$

Agriochelis

$$\begin{array}{r} x \ 78.7 \quad x^2 \ 6193.69 \\ 77.2 \quad 5959.84 \\ 77.4 \quad 5990.76 \\ 77.4 \quad 5990.76 \\ \hline 4) 310.7 \quad 4) 24135.05 \end{array}$$

$$M = 77.67 \quad M^2 = 6033.512$$

$$M^2 = 6032.6289$$

$$\sqrt{6033.512 - 6032.628} = \sqrt{.884} = .94$$

$$\begin{array}{r} 77.67 \\ \times 0.94 \\ \hline 78.61 \\ 76.73 \end{array}$$

Pave

$$\begin{array}{r}
 x \quad 76.0 \quad \times 2 \quad 5776.00 \\
 75.3 \quad 5670.09 \\
 77.3 \quad 5975.29 \\
 75.5 \quad 5700.25 \\
 \hline
 4 \overline{) 304.1} \quad 4 \overline{) 23121.63} \\
 \hline
 M \quad 76.025 \quad - M \quad 5780.4075 \\
 M^2 = 5779.8006
 \end{array}$$

$$s = \sqrt{5780.4075 - 5779.8006} = \sqrt{.6069} = .779$$

$$\begin{array}{r}
 76.025 \\
 .779 \\
 \hline
 76.804
 \end{array}
 \quad
 \begin{array}{r}
 76.025 \\
 .779 \\
 \hline
 75.246
 \end{array}
 \quad
 ?$$

Mareo-melataurus

σ_p $M = 45.76$ $\sigma = 1.97509$ $n = 49$ $\sigma_M = .28215$
 $\sigma_{mel.}$ $M = 44.9$ $\sigma = 1.8974$ $n = 46$ $\sigma_M = .27977$
 Ag. & Pavo only one indid.

$$\sigma_p \sigma_M = \frac{\sigma}{\sqrt{n}} = \frac{1.97509}{\sqrt{49}} = \frac{1.97509}{7} = .28215$$

$$\sigma_{mel.} \sigma_M = \frac{\sigma}{\sqrt{n}} = \frac{1.8974}{\sqrt{46}} = \frac{1.8974}{6.782} = .27977$$

$$\sigma_d \frac{M_p - M_m}{\sqrt{(\sigma_{m_p})^2 + (\sigma_{m_m})^2}} = \frac{45.76 - 44.9}{\sqrt{(.28215)^2 + (.27977)^2}} = \frac{.86}{\sqrt{.079524 + .077284}} = \frac{.86}{\sqrt{.156808}} = \frac{.86}{.3958} = 2.173$$

$$\sigma_p \begin{array}{r} M \ 45.76 \\ \sigma + 1.97509 \\ \hline 47.73509 \end{array} \quad \begin{array}{r} 45.76000 \\ 1.97509 \\ \hline 43.78491 \end{array}$$

$$\sigma_{Ag} \begin{array}{r} M = 40.0 \\ 43.78491 \\ \hline 40.0 \\ 1.97509 \times 3.78491 (1.9 \sigma's) \\ \hline 1.97509 \\ 18.09820 \\ \hline 17.77581 \end{array}$$

$$\sigma_{Pavo} \begin{array}{r} M = 41.9 \\ 43.78491 \\ \hline 41.90000 \\ \hline 1.88491 \end{array}$$

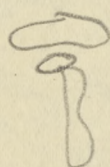
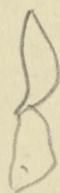


Table VIII

Foril Larso-metabaurus

$$\frac{\sum X}{n} = \frac{2242.3}{49} = 45.76$$

$$45.76^2 = 209,29776$$

$$\frac{\sum x^2}{n} = \frac{102747.91}{49} = 209,68795$$

$$s = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum X}{n}\right)^2} = \sqrt{209,68795 - 209,29776} = \underline{3,9019}$$

$$s = \underline{1,97509}$$

Meleagris

$$\frac{\sum X}{n} = \frac{269.5}{6} = 44.9 \quad 44.9^2 = 2016.01$$

xP	21.3307
	21.2308
	21.3542
	21.0288
	20.5424
	21.6564
6	127.1445
M	21.1907

$$\frac{\sum x^2}{n} = \frac{12714.45}{6}$$

$$\frac{\sum x^2}{n} = \frac{12117.71}{6} = 2019.618$$

$$- 2016.01$$

$$3.608$$

$$s = \sqrt{3.608} = \underline{1.8974}$$

Table 5.

(meleagris)
Measurements of Humerus of Parapavo.

Ratio: Antero-postero. breadth of shaft / transverse breadth of shaft.

Males.

X.	X ²
.78	.6084
.78	.6084
.77	.5929
.77	.5929
.74	.5476
.79	.6241
.78	.6084
.81	.6561
.77	.5929
.77	.5929
.79	.6241
.77	.5929
.77	.5929
.76	.5776
.75	.6525 ✓
.82	.6724
.81	.6561
.72	.5184
13.95	109115

[n = 18]

Females.

X.	X ²
.77	.5929
.75	.5625
.72	.5184
.84	.7056
.85	.7225
.74	.5476
.76	.5776
.75	.5625
.73	.5329
.83	.6889
.73	.5329
.80	.6400
.73	.5329
.76	.5776
.74	.5476
.73	.5329
.78	.6084
.76	.5776
13.77	10.5613

$$M_{x_{\sigma}} = .7750$$

$$\frac{\sum x_{\sigma}^2}{n} = .6062$$

$$M_{x_f} = .7617$$

$$\frac{\sum x_f^2}{n} = .5867$$

$$M_{x_{\sigma}} - M_{x_f} = .7750 - .7617 = .0133$$

$$\sigma_{x_{\sigma}} = \sqrt{.6062 - .6006} = \sqrt{.0056} = .0748$$

$$\sigma_{x_f} = \sqrt{.5867 - .5802} = \sqrt{.0065} = .0806$$

$$n = 18 \quad \sqrt{18} = 4.2426$$

$$\sigma_{M_{\sigma}} = \frac{\sigma_{x_{\sigma}}}{\sqrt{n}} = \frac{.0748}{4.2426} = .0176$$

$$\sigma_{M_f} = \frac{\sigma_{x_f}}{\sqrt{n}} = \frac{.0806}{4.2426} = .0190$$

$$\sigma_d = \sqrt{(\sigma_{M_{\sigma}})^2 + (\sigma_{M_f})^2} = \sqrt{.0176^2 + .0190^2} = \sqrt{.00067076} = .0259$$

$$\text{Standard Score} = \frac{.0133}{.0259} = +.514$$

$$\text{Standard Score (Diff. between } \sigma_s) = -.423$$

Table I skull

	Parapavo	Meleagris	Agriocharis
$\Sigma x =$	314.70	281.50	159.00
$n =$	8	6	4
$M_x =$	39.3375	46.9167	39.7500
$\Sigma x^2 =$	12425.21	13226.53	6324.44
$\frac{\Sigma x^2}{n} =$	1553.1512	2204.4217	1581.1100
$M_{x^2} =$	1547.4389	2201.1767	1580.0625
$\frac{\Sigma x^2}{n} - M_{x^2} =$	5.7123	3.2450	1.0475
$\sigma =$	2.390	1.8015	1.0235
$\sqrt{\sigma} =$	2.8284	$\sqrt{6} = 2.4495$	$\sqrt{4} = 2$
$\sigma_m =$	.8450	.7354	.51175
$\sigma_m^2 =$	.714025	.5408	.2618

$$\begin{aligned}
 M_{pp} - M_{mel} &= 7.579 \\
 \sigma M_{pp}^2 + \sigma M_{mel}^2 &= 1.2548 \\
 \sigma d &= 1.118 \\
 \sigma_{\text{error}} &= 6.77 - 6.5
 \end{aligned}$$

$$\begin{aligned}
 M_{pp} - M_{ag} &= .4125 \\
 \sigma M_{pp}^2 + \sigma M_{ag}^2 &= .9758 \\
 \sigma d &= .9878 \\
 \sigma_{\text{error}} &= .415
 \end{aligned}$$

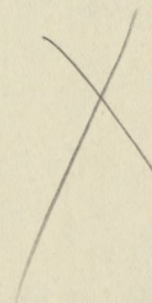


Table VII
Libio-raius

Meleagus

2nd series

data

$$\sum x = 139.7$$

$$n = 14$$

$$M_x = 9.97857$$

$$\sum x^2 = 1395.53$$

$$\frac{\sum x^2}{n} = 99.6807$$

$$M_x^2 = 99.5704$$

$$\frac{\sum x^2}{n} - M_x^2 = .1103$$

$$\sigma = .33211$$

$$\sqrt{14} = 3.7417$$

$$\sigma_m = .088759$$

$$\sigma_m^2 = .0078783376$$

data

$$\sum x = 1224.37$$

$$n = 14$$

$$M_x = 87.4978$$

$$\sum x^2 = 107,731.63$$

$$\frac{\sum x^2}{n} = 7695.1164$$

$$M_x^2 = 7673.3746$$

$$\frac{\sum x^2}{n} - M_x^2 = 21.7418$$

$$\sigma = 4.6629$$

$$\sqrt{14} = 3.7417$$

$$\sigma_m = 1.2462$$

$$\sigma_m^2 = 1.5530$$

Ag.

$$\sum x = 36.8$$

$$n = 4$$

$$M_x = 9.2$$

$$\sum x^2 = 339.24$$

$$\frac{\sum x^2}{n} = 84.8100$$

$$M_x^2 = 84.6400$$

$$\frac{\sum x^2}{n} - M_x^2 = .1700$$

$$\sigma = .4123$$

$$\sqrt{4} = 2$$

$$\sigma_m = .20615$$

$$\sigma_m^2 = .0425$$

$$\sum x = 310.70$$

$$n = 4$$

$$M_x = 77.675$$

$$\sum x^2 = 27,135.05$$

$$\frac{\sum x^2}{n} = 6033.7625$$

$$M_x^2 = 6033.4056$$

$$\frac{\sum x^2}{n} - M_x^2 = .3569$$

$$\sigma = .59658$$

$$\sqrt{4} = 2$$

$$\sigma_m = .29829$$

$$\sigma_m^2 = .08899$$

Table VII Libio tarsus

Pawo

b to a

$$\Sigma X = 37.60$$

$$n = 7$$

$$M_x = 9.40$$

$$\Sigma x^2 = 354.10$$

$$\frac{\Sigma x^2}{n} = 88.525$$

$$M_x^2 = 88.36$$

$$\frac{\Sigma x^2}{n} - M_x^2 = .165$$

$$\sigma = .4063$$

$$\sqrt{n} = 2$$

$$\sigma_m = .2031$$

$$\sigma_m^2 = .041249$$

d to c

$$\Sigma X = 304.1$$

$$n = 4$$

$$M_x = 76.025$$

$$\Sigma x^2 = 23,121.63$$

$$\frac{\Sigma x^2}{n} = 5780.4075$$

$$M_x^2 = 5779.8006$$

$$\frac{\Sigma x^2}{n} - M_x^2 = .6069$$

$$\sigma = .7790$$

$$\sqrt{n} = 2$$

$$\sigma_m = .3895$$

$$\sigma_m^2 = .15171$$

$$M_{pp} - M_{mm} \text{ b to a} = 9.4657 - 9.9985 = -.5328$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_{mm}}^2 =$$

$$.00353 + .00787 = .01140$$

$$\sigma_d = .107$$

$$St_{sc} = -4.79265$$

$$M_{pp} - M_{aq} = 9.4657 - 9.2000 = +.2657$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_{aq}}^2 =$$

$$.00353 + .0425 = .04603$$

$$\sigma_d = .217$$

$$St_{sc} = +1.241$$

b to a

$$M_{pp} - M_p = 9.4657 - 9.4 = .0657$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_p}^2 =$$

$$.00353 + .041249 = .044779$$

$$\sigma_d = .2116$$

$$St_{sc} = +.3104$$

d to c

$$M_{pp} - M_{mm} = 79.8628 - 87.5978 = -7.7350$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_{mm}}^2 =$$

$$.38216 + .15530 = .53746$$

$$\sigma_d = 1.389$$

$$St_{sc} = -5.569$$

d to c

$$M_{pp} - M_{aq} = 79.8628 - 77.6750 = +2.1878$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_{aq}}^2 =$$

$$.38216 + .08899 = .47115$$

$$\sigma_d = .68635$$

$$St_{sc} = 3.187$$

d to c

$$M_{pp} - M_{mm} = 79.8628 - 76.0250 = +3.8378$$

$$\sigma_{m_{pp}}^2 + \sigma_{m_{mm}}^2 =$$

$$.38216 + .15171 = .53387$$

$$\sigma_d = .7339$$

$$St_{sc} = 5.229$$

Plant

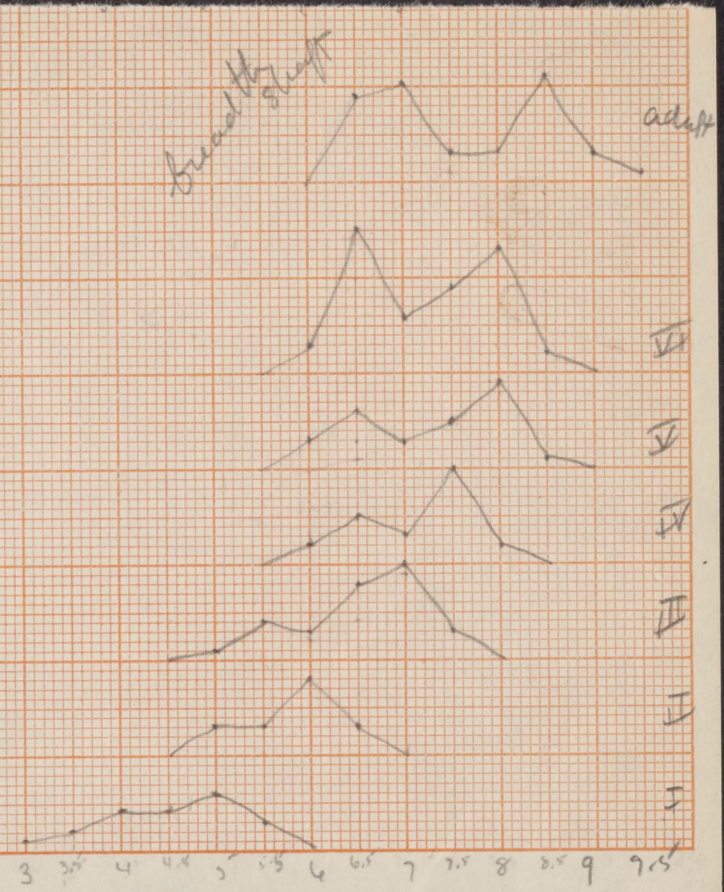
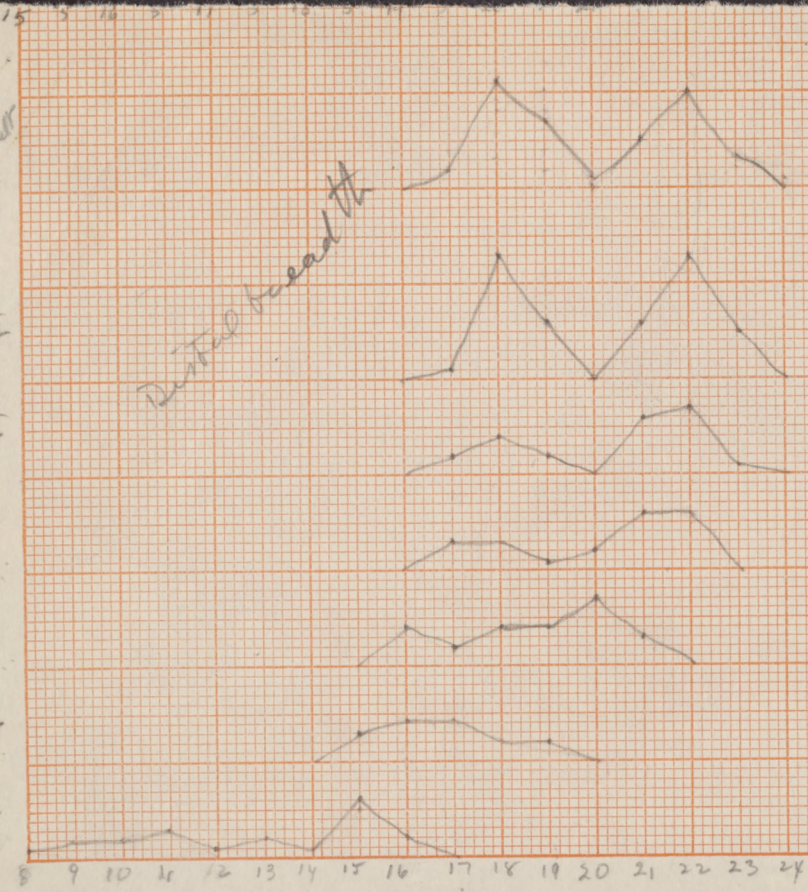
IV

IV

II

II

I



La Brea
cave, fauna

Br. dent

Br. str

adult

VII

VI

V

IV

III

II

I

0

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

3

4

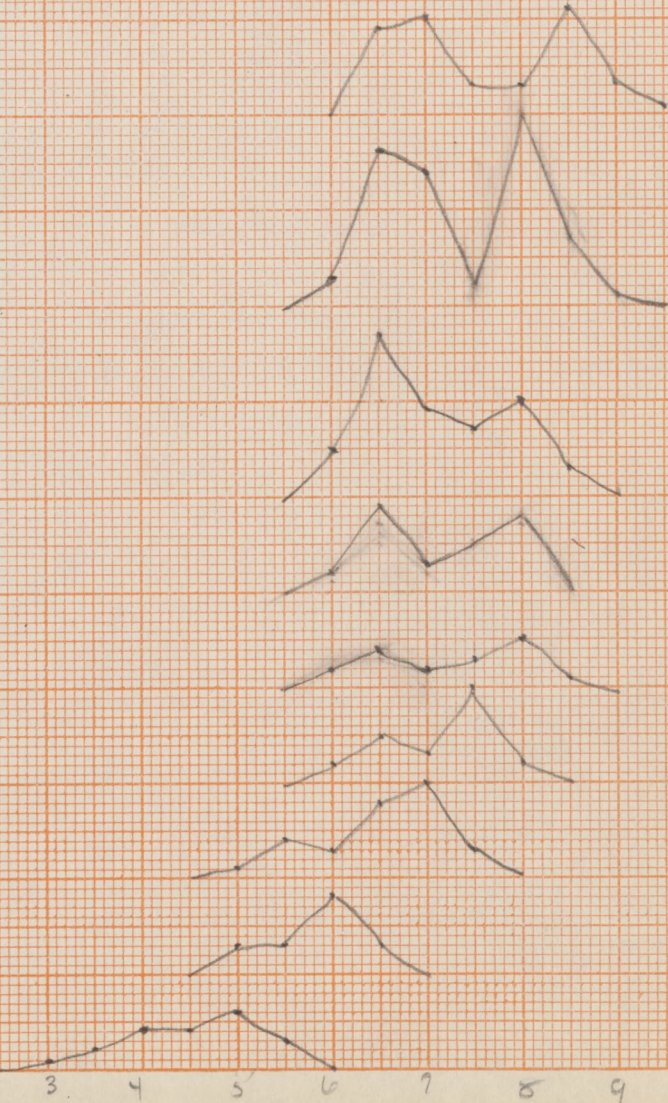
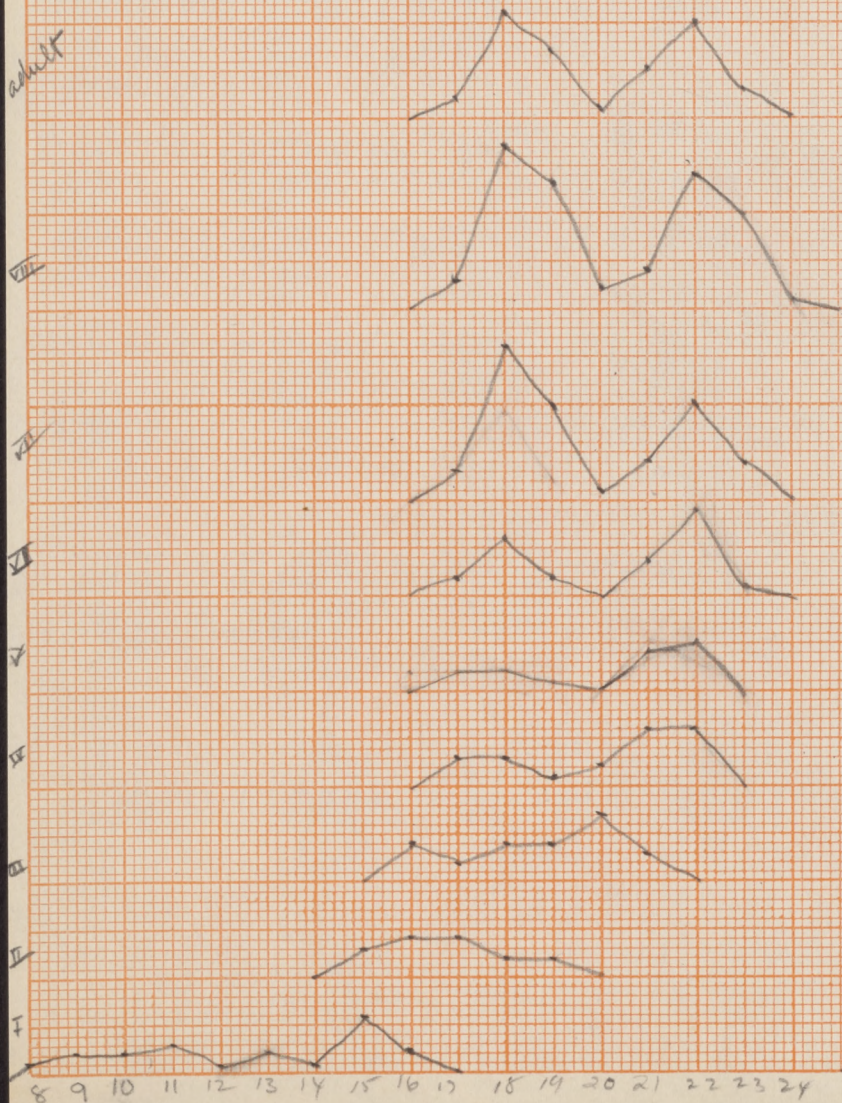
5

6

7

8

9



Average Measurements and Ratios

	GROUP I	GROUP II	GROUP III	GROUP IV	GROUP V	GROUP VI * VII*	ADULT * VIII*
Length (mm.)							
Male			115	120 130	130 133	134 135 136	136 136
Female	63	86	90	103 105	105 107	108 109 110	110 110
Both sexes	60	85	103	116 118	117 120	121 122 123	121 123 123
Breadth (mm.)			20	21.5	22	22	22
distal end			16.5	17.2	18	18	18
Male	13	16.5	20	21.5	22	22 22	22 22
Female		17	16.5	17.5 18	18	18 18	18 18
Both sexes	13	16.5	18	19.5 20	20	20 20	20 20
Breadth (mm.) shaft							
Male			7.0	7.4 6	7.7 7.9	7.9 7.9 8.1	8.4 8.6 8.3
Female			5.5 5.7	6.2 5	6.3 6.6	6.5 6.6 6.8	6.8 7.0 6.9
Both sexes	4.7	6	6.3	6.8 7	7 7.4	7.2 7.4 7.5	7.6 7.8 7.6
Ratio (%)							
Breadth distal end to length	7.9 7.5	6.9	6.1	5.9 6.0	6.0 ^K	6.0 6.0	6.4 6.1
Ratio (%)							
Breadth shaft to length	20.5	19.5	18.0	17.0	16.5	16.0 16.0	16.0 16.0

*Length, and ratios adjusted to younger groups by subtraction of 5 mm. (height of tarsal cap) from measurement of length in each specimen.

262
175
270

Fig. 2

Parasitoid

latent graphs
April 2, 1945
Sensu

Adult

Sub
Ad

7

6

5

4

3

2

1

28-34

24-28

10-21

14 20

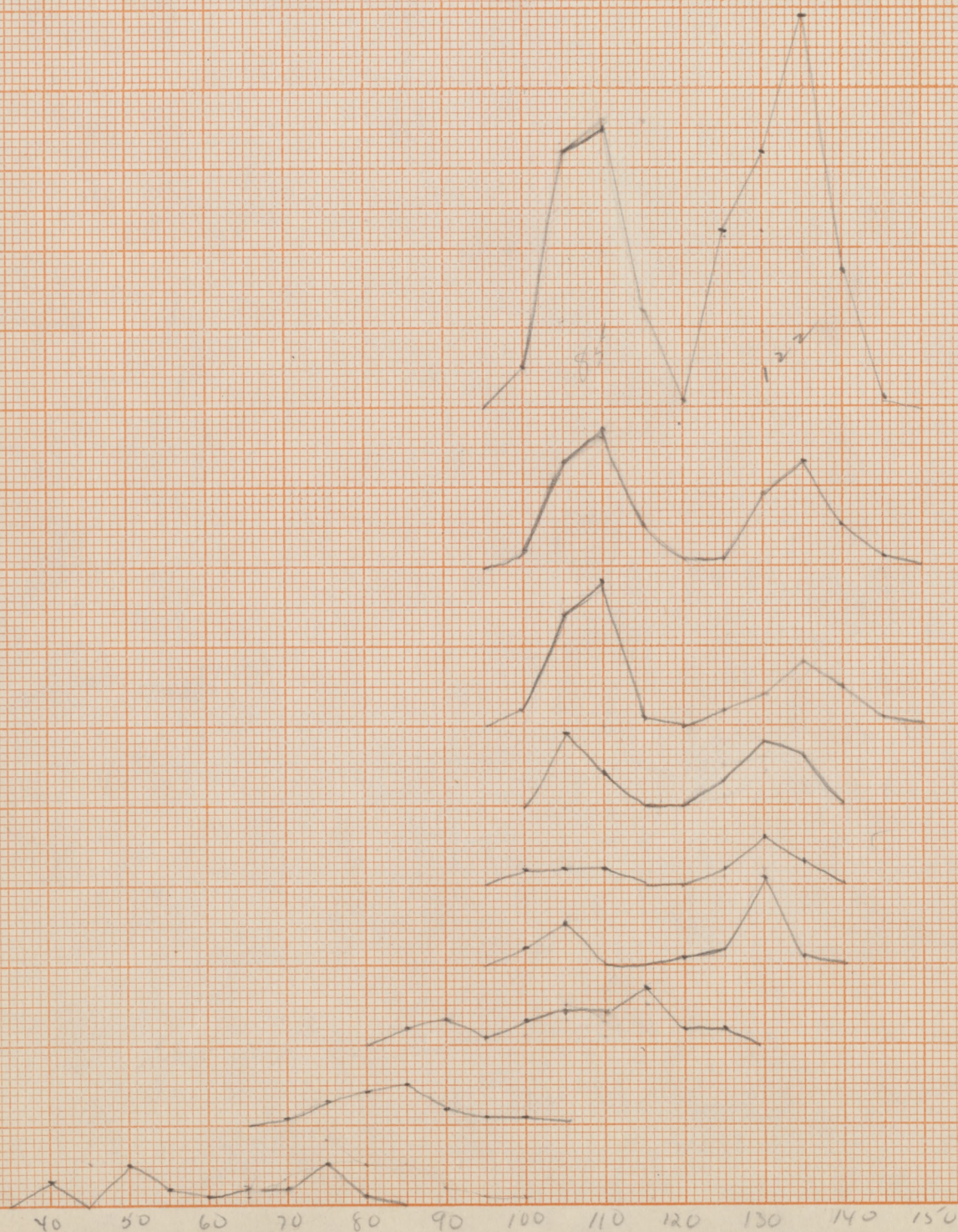
10 14

10

6

4-6

1-4

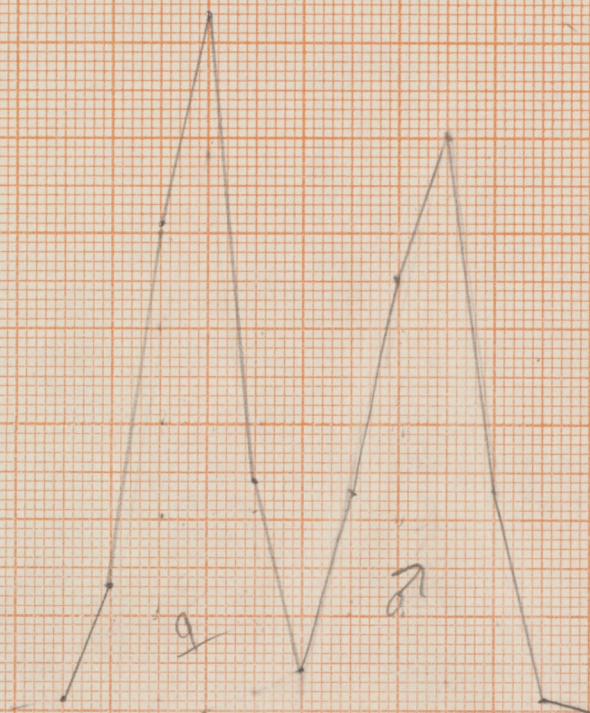


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~~Dist. fin. chart~~
 3/12/45
 new chart made
 see it

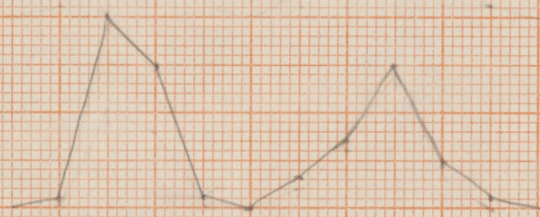
ad.

6



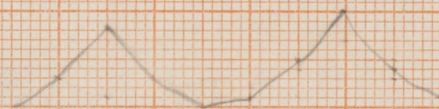
adult
 fully formed bone

5



Prox. end complete
 but still porous
 rib. ant. arches or absent

5



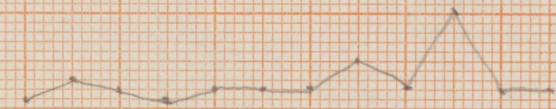
Dist. end complete or
 proximal end shaping but
 very porous (few have been)

4



Dist. foramen complete
 ext. nor. (1st winter?)

3



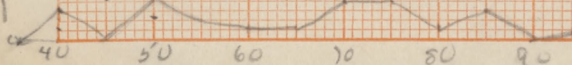
Distal end heavily well
 formed. But neither
 foramen complete

2



distal end shaping a little
 but still porous

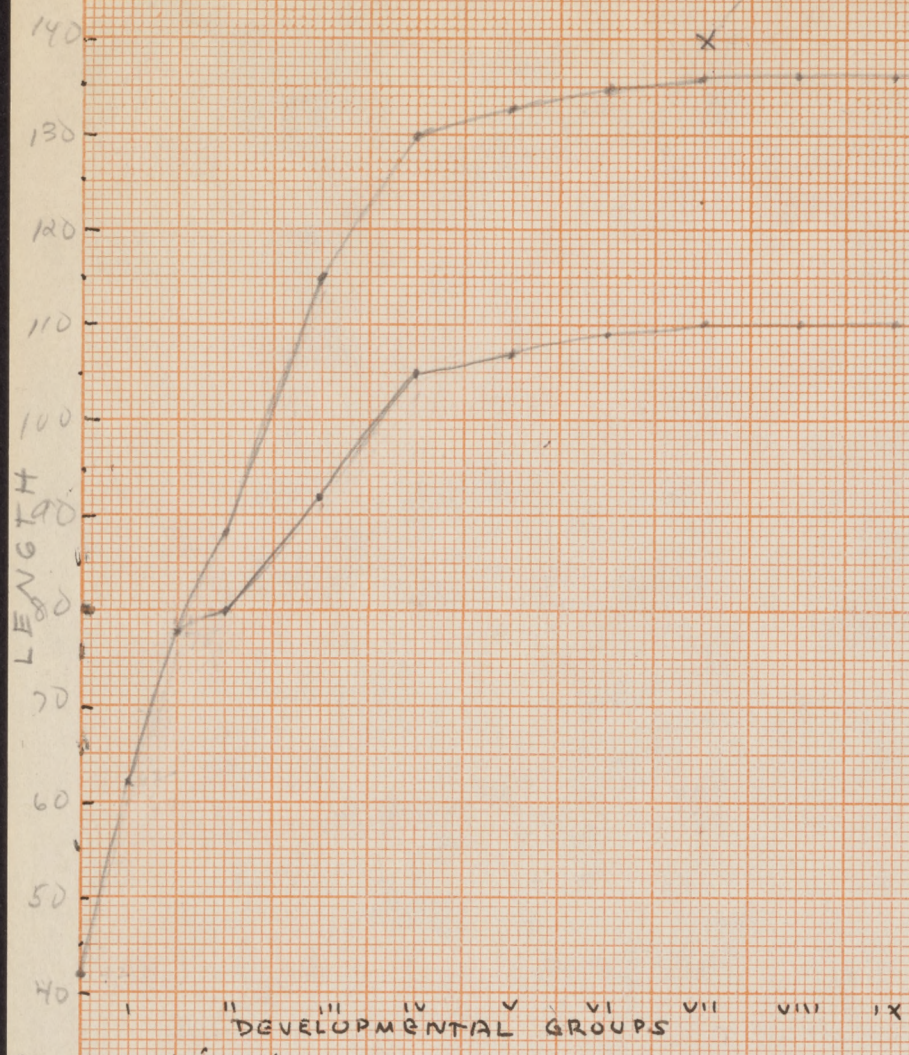
1



both ends very rough

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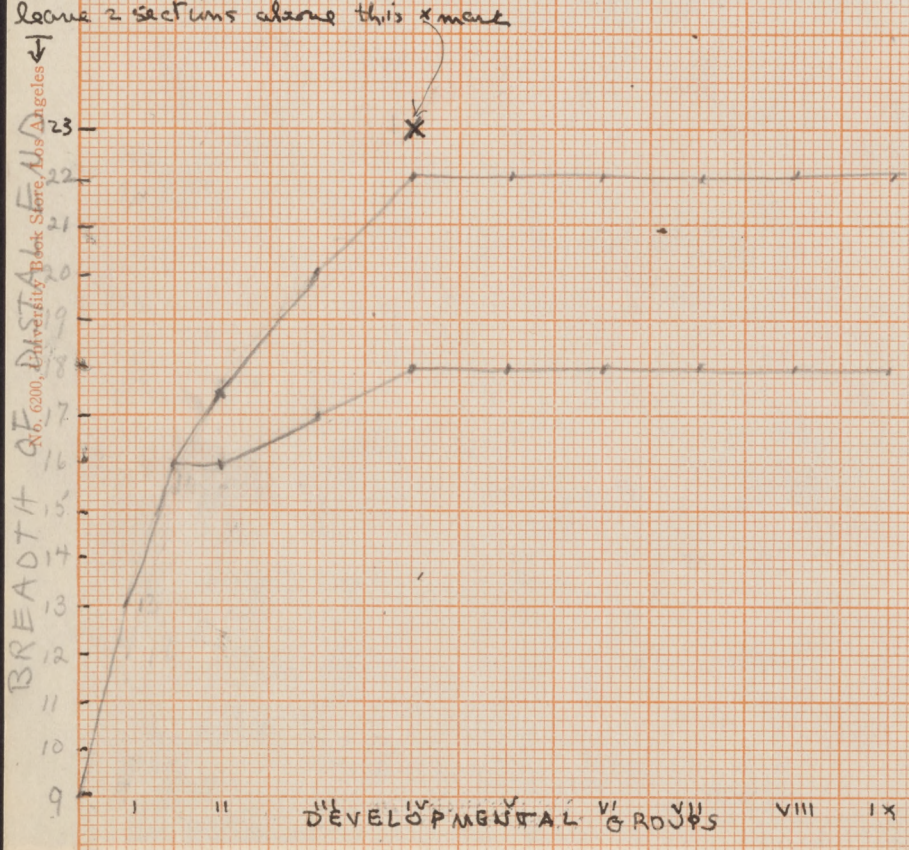
I | II | III | IV | V | VI | VII | VIII | IX



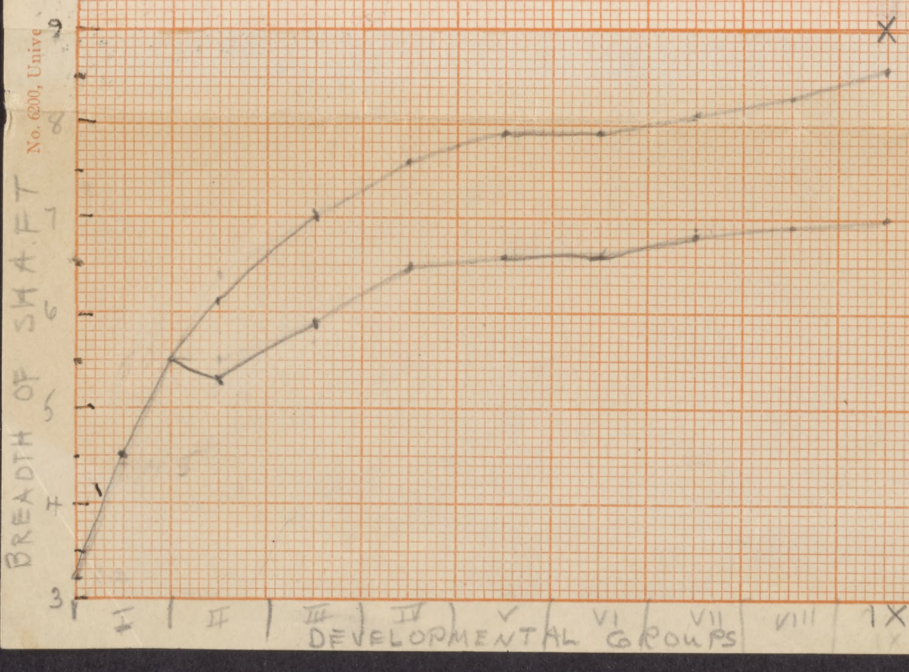
Graphs depicting
~~average~~ measurements of
 tarsometatarsi of *Parafavo*
 in each of the nine groups.
 In all except Group I ~~and~~
 the average measurement
 is included for each sex.
 In Group I, where sex dif-
 ference in size is not dis-
 cernible, the minimum &
 maximum measurements
 are included as well as
 the average for the group
 in which
 3 entries within that
 group for each dimension
 were recorded in group I

~~Length~~

X = stage at which
 max. min. growth
 is reached.



~~Breadth of distal femur~~



~~Breadth of shaft~~